

**AMENDMENT IN THE NATURE OF A SUBSTITUTE
TO H.R. 3070
OFFERED BY MR. BOEHLERT OF NEW YORK (FOR
HIMSELF, MR. GORDON OF TENNESSEE, MR.
CALVERT OF CALIFORNIA, AND MR. UDALL
OF COLORADO)**

Strike all after the enacting clause and insert the following:

1 SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

2 (a) SHORT TITLE.—This Act may be cited as the
3 “National Aeronautics and Space Administration Author-
4 ization Act of 2005”.

5 (b) TABLE OF CONTENTS.—The table of contents for
6 this Act is as follows:

Sec. 1. Short title; table of contents.
Sec. 2. Findings.
Sec. 3. Definitions.

TITLE I—GENERAL PRINCIPLES AND REPORTS

Sec. 101. Responsibilities, policies, and plans.
Sec. 102. Reports.
Sec. 103. Baselines and cost controls.
Sec. 104. Prize authority.
Sec. 105. Foreign launch vehicles.
Sec. 106. Safety management.
Sec. 107. Lessons learned and best practices.
Sec. 108. Commercialization plan.
Sec. 109. Study on the feasibility of use of ground source heat pumps.

TITLE II—AUTHORIZATION OF APPROPRIATIONS

Sec. 201. Structure of budgetary accounts.
Sec. 202. Fiscal year 2006.



2

- Sec. 203. Fiscal year 2007.
- Sec. 204. ISS research.
- Sec. 205. Test facilities.
- Sec. 206. Proportionality.
- Sec. 207. Limitations on authority.
- Sec. 208. Notice of reprogramming.
- Sec. 209. Cost overruns.
- Sec. 210. Official representational fund.
- Sec. 211. International Space Station cost cap.

TITLE III—SCIENCE

Subtitle A—General Provisions

- Sec. 301. Performance assessments.
- Sec. 302. Status report on Hubble Space Telescope servicing mission.
- Sec. 303. Independent assessment of Landsat-NPOESS integrated mission.
- Sec. 304. Assessment of science mission extensions.
- Sec. 305. Microgravity research.
- Sec. 306. Coordination with the National Oceanic and Atmospheric Administration.

Subtitle B—Remote Sensing

- Sec. 311. Definitions.
- Sec. 312. Pilot projects to encourage public sector applications.
- Sec. 313. Program evaluation.
- Sec. 314. Data availability.
- Sec. 315. Education.

Subtitle C—George E. Brown, Jr. Near-Earth Object Survey

- Sec. 321. George E. Brown, Jr. Near-Earth Object Survey.

TITLE IV—AERONAUTICS

- Sec. 401. Definition.

Subtitle A—National Policy for Aeronautics Research and Development

- Sec. 411. Policy.

Subtitle B—NASA Aeronautics Breakthrough Research Initiatives

- Sec. 421. Environmental aircraft research and development initiative.
- Sec. 422. Civil supersonic transport research and development initiative.
- Sec. 423. Rotorcraft and other runway-independent air vehicles research and development initiative.

Subtitle C—Other NASA aeronautics research and development activities

- Sec. 431. Fundamental research and technology base program.
- Sec. 432. Airspace systems research.
- Sec. 433. Aviation safety and security research.
- Sec. 434. Zero-emissions aircraft research.
- Sec. 435. Mars aircraft research.
- Sec. 436. Hypersonics research.
- Sec. 437. NASA aeronautics scholarships.
- Sec. 438. Aviation weather research.



3

- Sec. 439. Assessment of wake turbulence research and development program.
- Sec. 440. University-based centers for research on aviation training.

TITLE V—HUMAN SPACE FLIGHT

- Sec. 501. International Space Station completion.
- Sec. 502. Human exploration priorities.
- Sec. 503. GAO assessment.

TITLE VI—OTHER PROGRAM AREAS

Subtitle A—Space and Flight Support

- Sec. 601. Orbital debris.
- Sec. 602. Secondary payload capability.

Subtitle B—Education

- Sec. 611. Institutions in NASA's minority institutions program.
- Sec. 612. Program to expand distance learning in rural underserved areas.
- Sec. 613. Charles "Pete" Conrad Astronomy Awards.
- Sec. 614. Review of education programs.
- Sec. 615. Equal access to NASA's education programs.

TITLE VII—MISCELLANEOUS AMENDMENTS

- Sec. 701. Retrocession of jurisdiction.
- Sec. 702. Extension of indemnification.
- Sec. 703. NASA scholarships.
- Sec. 704. Independent cost analysis.
- Sec. 705. Limitations on off-shore performance of contracts for the procurement of goods and services.

TITLE VIII—INDEPENDENT COMMISSIONS

- Sec. 801. Definitions.

Subtitle A—International Space Station Independent Safety Commission

- Sec. 811. Establishment of Commission.
- Sec. 812. Tasks of the Commission.
- Sec. 813. Sunset.

Subtitle B—Human Space Flight Independent Investigation Commission

- Sec. 821. Establishment of Commission.
- Sec. 822. Tasks of the Commission.

Subtitle C—Organization and Operation of Commissions

- Sec. 831. Composition of Commissions.
- Sec. 832. Powers of Commission.
- Sec. 833. Public meetings, information, and hearings.
- Sec. 834. Staff of Commission.
- Sec. 835. Compensation and travel expenses.
- Sec. 836. Security clearances for Commission members and staff.
- Sec. 837. Reporting requirements and termination.



1 **SEC. 2. FINDINGS.**

2 The Congress finds the following:

3 (1) On January 14, 2004, the President un-
4 veiled the Vision for Space Exploration to guide
5 United States policy on human space exploration.

6 (2) The President's vision of returning humans
7 to the Moon and working toward a sustainable
8 human presence there and then venturing further
9 into the solar system provides a sustainable rationale
10 for the United States human space flight program.

11 (3) As we enter the Second Space Age, the Na-
12 tional Aeronautics and Space Administration should
13 continue to support robust programs in space
14 science, aeronautics, and earth science as it moves
15 forward with plans to send Americans to the Moon,
16 Mars, and worlds beyond.

17 (4) The National Aeronautics and Space Ad-
18 ministration's programs can advance the frontiers of
19 science, expanding understanding of our planet and
20 of the universe, and contribute to American pros-
21 perity.

22 (5) The United States should honor its inter-
23 national commitments to the International Space
24 Station program.

25 (6) The United States must remain the leader
26 in aeronautics and aviation. Any erosion of this pre-



1 eminence is not in the Nation's economic or security
2 interests. Past Federal investments in aeronautics
3 research and development have benefited the econ-
4 omy and national security of the United States and
5 improved the quality of life of its citizens.

6 (7) Long-term progress in aeronautics and
7 space requires continued Federal investment in fun-
8 damental research, test facilities, and maintenance
9 of a skilled civil service workforce at NASA's Cen-
10 ters.

11 (8) An important part of NASA's mission is
12 education and outreach.

13 **SEC. 3. DEFINITIONS.**

14 In this Act:

15 (1) ADMINISTRATOR.—The term “Adminis-
16 trator” means the Administrator of the National
17 Aeronautics and Space Administration.

18 (2) ISS.—The term “ISS” means the Inter-
19 national Space Station.

20 (3) NASA.—The term “NASA” means the Na-
21 tional Aeronautics and Space Administration.

22 **TITLE I—GENERAL PRINCIPLES**
23 **AND REPORTS**

24 **SEC. 101. RESPONSIBILITIES, POLICIES, AND PLANS.**

25 (a) GENERAL RESPONSIBILITIES.—



1 (1) PROGRAMS.—The Administrator shall en-
2 sure that NASA carries out a balanced set of pro-
3 grams that shall include, at a minimum, programs
4 in—

5 (A) human space flight, in accordance with
6 subsection (b);

7 (B) aeronautics research and development;
8 and

9 (C) scientific research, which shall include,
10 at a minimum—

11 (i) robotic missions to study planets,
12 and to deepen understanding of astronomy,
13 astrophysics, and other areas of science
14 that can be productively studied from
15 space;

16 (ii) earth science research and re-
17 search on the Sun-Earth connection
18 through the development and operation of
19 research satellites and other means;

20 (iii) support of university research in
21 space science and earth science; and

22 (iv) research on microgravity, includ-
23 ing research that is not directly related to
24 human exploration.



1 (2) CONSULTATION AND COORDINATION.—In
2 carrying out the programs of NASA, the Adminis-
3 trator shall—

4 (A) consult and coordinate to the extent
5 appropriate with other relevant Federal agen-
6 cies, including through the National Science
7 and Technology Council;

8 (B) work closely with the private sector,
9 including by—

10 (i) encouraging the work of entre-
11 preneurs who are seeking to develop new
12 means to launch satellites, crew, or cargo;

13 (ii) contracting with the private sector
14 for crew and cargo services to the extent
15 practicable; and

16 (iii) using commercially available
17 products (including software) and services
18 to the extent practicable to support all
19 NASA activities; and

20 (C) involve other nations to the extent ap-
21 propriate.

22 (b) VISION FOR SPACE EXPLORATION.—The Admin-
23 istrator shall manage human space flight programs to
24 strive to achieve the following goals:



1 (1) Returning Americans to the Moon no later
2 than 2020.

3 (2) Launching the Crew Exploration Vehicle as
4 close to 2010 as possible.

5 (3) Increasing knowledge of the impacts of long
6 duration stays in space on the human body using the
7 most appropriate facilities available.

8 (4) Enabling humans to land on and return
9 from Mars and other destinations on a timetable
10 that is technically and fiscally possible.

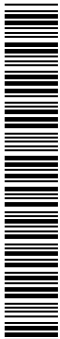
11 (c) AERONAUTICS.—

12 (1) IN GENERAL.—The President of the United
13 States, through the Administrator, and in consulta-
14 tion with other Federal agencies, shall develop a na-
15 tional aeronautics policy to guide the aeronautics
16 programs of NASA through 2020.

17 (2) CONTENT.—At a minimum, the national
18 aeronautics policy shall describe for NASA—

19 (A) the priority areas of research for aero-
20 nautics through fiscal year 2011;

21 (B) the basis on which and the process by
22 which priorities for ensuing fiscal years will be
23 selected;



1 (C) the facilities and personnel needed to
2 carry out the aeronautics program through fis-
3 cal year 2011; and

4 (D) the budget assumptions on which the
5 national aeronautics policy is based, which for
6 fiscal years 2006 and 2007 shall be the author-
7 ized level for aeronautics provided in title II of
8 this Act.

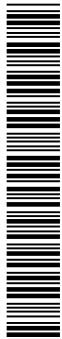
9 (3) CONSIDERATIONS.—In developing the na-
10 tional aeronautics policy, the President shall con-
11 sider the following issues, which shall be discussed
12 in the transmittal under paragraph (5):

13 (A) The extent to which NASA should
14 focus on long-term, high-risk research or more
15 incremental research, and the expected impact
16 on the United States aircraft and airline indus-
17 tries of that decision.

18 (B) The extent to which NASA should ad-
19 dress military and commercial needs.

20 (C) How NASA will coordinate its aero-
21 nautics program with other Federal agencies.

22 (D) The extent to which NASA will fund
23 university research, and the expected impact of
24 that funding on the supply of United States
25 workers for the aeronautics industry.



1 (E) The extent to which the priority areas
2 of research listed pursuant to paragraph (2)(A)
3 should include the activities authorized by title
4 IV of this Act, the discussion of which shall in-
5 clude a priority ranking of all of the activities
6 authorized in title IV and an explanation for
7 that ranking.

8 (4) CONSULTATION.—In the development of the
9 national aeronautics policy, the Administrator shall
10 consult widely with academic and industry experts
11 and with other Federal agencies. The Administrator
12 may enter into an arrangement with the National
13 Academy of Sciences to help develop the national
14 aeronautics policy.

15 (5) SCHEDULE.—The Administrator shall
16 transmit the national aeronautics policy to the Com-
17 mittee on Appropriations and the Committee on
18 Science of the House of Representatives, and to the
19 Committee on Appropriations and the Committee on
20 Commerce, Science, and Transportation of the Sen-
21 ate, not later than the date on which the President
22 submits the proposed budget for the Federal Gov-
23 ernment for fiscal year 2007 to the Congress. The
24 Administrator shall make available to those commit-
25 tees any study done by a nongovernmental entity



1 that was used in the development of the national
2 aeronautics policy.

3 (d) SCIENCE.—

4 (1) IN GENERAL.—The Administrator shall de-
5 velop a policy to guide the science programs of
6 NASA through 2016.

7 (2) CONTENT.—At a minimum, the policy shall
8 describe—

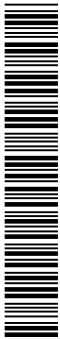
9 (A) the missions NASA will initiate, de-
10 sign, develop, launch, or operate in space
11 science and earth science through fiscal year
12 2016, including launch dates;

13 (B) a priority ranking of all of the mis-
14 sions listed under subparagraph (A), and the
15 rationale for the ranking;

16 (C) the budget assumptions on which the
17 policy is based, which for fiscal years 2006 and
18 2007 shall be consistent with the authorizations
19 provided in title II of this Act; and

20 (D) the facilities and personnel needed to
21 carry out the policy through fiscal year 2016.

22 (3) CONSIDERATIONS.—In developing the
23 science policy under this subsection, the Adminis-
24 trator shall consider the following issues, which shall
25 be discussed in the transmittal under paragraph (6):



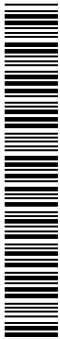
1 (A) What the most important scientific
2 questions in space science and earth science
3 are.

4 (B) The relationship between NASA's
5 space and earth science activities and those of
6 other Federal agencies.

7 (4) CONSULTATION.—In developing the policy
8 under this subsection, the Administrator shall draw
9 on decadal surveys and other reports in planetary
10 science, astronomy, solar and space physics, earth
11 science, and any other relevant fields developed by
12 the National Academy of Sciences. The Adminis-
13 trator shall also consult widely with academic and
14 industry experts and with other Federal agencies.

15 (5) HUBBLE SPACE TELESCOPE.—The policy
16 developed under this subsection shall address plans
17 for a human mission to repair the Hubble Space
18 Telescope consistent with section 302 of this Act.

19 (6) SCHEDULE.—The Administrator shall
20 transmit the policy developed under this subsection
21 to the Committee on Science of the House of Rep-
22 resentatives and the Committee on Commerce,
23 Science, and Transportation of the Senate not later
24 than the date on which the President submits the
25 proposed budget for the Federal Government for fis-



1 cal year 2007 to the Congress. The Administrator
2 shall make available to those committees any study
3 done by a nongovernmental entity that was used in
4 the development of the policy.

5 (e) FACILITIES.—

6 (1) IN GENERAL.—The Administrator shall de-
7 velop a plan for managing NASA's facilities through
8 fiscal year 2015. The plan shall be consistent with
9 the policies and plans developed pursuant to this
10 section.

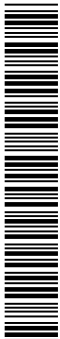
11 (2) CONTENT.—At a minimum, the plan shall
12 describe—

13 (A) any new facilities NASA intends to ac-
14 quire, whether through construction, purchase,
15 or lease, and the expected dates for doing so;

16 (B) any facilities NASA intends to signifi-
17 cantly modify, and the expected dates for doing
18 so;

19 (C) any facilities NASA intends to close,
20 and the expected dates for doing so;

21 (D) any transaction NASA intends to con-
22 duct to sell, lease, or otherwise transfer the
23 ownership of a facility, and the expected dates
24 for doing so;



1 (E) how each of the actions described in
2 subparagraphs (A), (B), (C), and (D) will en-
3 hance the ability of NASA to carry out its pro-
4 grams;

5 (F) the expected costs or savings expected
6 from each of the actions described in subpara-
7 graphs (A), (B), (C), and (D);

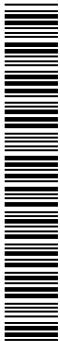
8 (G) the priority order of the actions de-
9 scribed in subparagraphs (A), (B), (C), and
10 (D);

11 (H) the budget assumptions of the plan,
12 which for fiscal years 2006 and 2007 shall be
13 consistent with the authorizations provided in
14 title II of this Act; and

15 (I) how facilities were evaluated in devel-
16 oping the plan.

17 (3) SCHEDULE.—The Administrator shall
18 transmit the plan developed under this subsection to
19 the Committee on Science of the House of Rep-
20 resentatives and the Committee on Commerce,
21 Science, and Transportation of the Senate not later
22 than the date on which the President submits the
23 proposed budget for the Federal Government for fis-
24 cal year 2008 to the Congress.

25 (f) WORKFORCE.—



1 (1) IN GENERAL.—The Administrator shall de-
2 velop a human capital strategy to ensure that NASA
3 has a workforce of the appropriate size and with the
4 appropriate skills to carry out the programs of
5 NASA, consistent with the policies and plans devel-
6 oped pursuant to this section. The strategy shall
7 cover the period through fiscal year 2011.

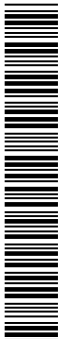
8 (2) CONTENT.—The strategy shall describe, at
9 a minimum—

10 (A) any categories of employees NASA in-
11 tends to reduce, the expected size and timing of
12 those reductions, the methods NASA intends to
13 use to make the reductions, and the reasons
14 NASA no longer needs those employees;

15 (B) any categories of employees NASA in-
16 tends to increase, the expected size and timing
17 of those increases, the methods NASA intends
18 to use to recruit the additional employees, and
19 the reasons NASA needs those employees;

20 (C) the steps NASA will use to retain
21 needed employees; and

22 (D) the budget assumptions of the strat-
23 egy, which for fiscal years 2006 and 2007 shall
24 be consistent with the authorizations provided
25 in title II of this Act, and any expected addi-



1 tional costs or savings from the strategy by fis-
2 cal year.

3 (3) SCHEDULE.—The Administrator shall
4 transmit the strategy developed under this sub-
5 section to the Committee on Science of the House of
6 Representatives and the Committee on Commerce,
7 Science, and Transportation of the Senate not later
8 than the date on which the President submits the
9 proposed budget for the Federal Government for fis-
10 cal year 2007 to the Congress. At least 60 days be-
11 fore transmitting the strategy, NASA shall provide
12 a draft of the strategy to its Federal Employee
13 Unions for a 30-day consultation period after which
14 NASA shall respond in writing to any written con-
15 cerns provided by the Unions.

16 (4) LIMITATION.—NASA may not initiate any
17 buyout offer or Reduction in Force until 60 days
18 after the strategy required by this subsection has
19 been transmitted to the Congress in accordance with
20 paragraph (3). NASA may not implement any Re-
21 duction in Force or other involuntary separations
22 prior to October 1, 2006.

23 (g) CENTER MANAGEMENT.—

24 (1) IN GENERAL.—The Administrator shall con-
25 duct a study to determine whether any of NASA's



1 centers should be operated by or with the private
2 sector by converting a center to a Federally Funded
3 Research and Development Center or through any
4 other mechanism.

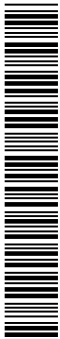
5 (2) CONTENT.—The study shall, at a
6 minimum—

7 (A) make a recommendation for the oper-
8 ation of each center and provide reasons for
9 that recommendation; and

10 (B) describe the advantages and disadvan-
11 tages of each mode of operation considered in
12 the study.

13 (3) CONSIDERATIONS.—In conducting the
14 study, the Administrator shall take into consider-
15 ation the experiences of other relevant Federal agen-
16 cies in operating laboratories and centers and any
17 reports that have reviewed the mode of operation of
18 those laboratories and centers, as well as any reports
19 that have reviewed NASA's centers.

20 (4) SCHEDULE.—The Administrator shall
21 transmit the study conducted under this subsection
22 to the Committee on Science of the House of Rep-
23 resentatives and the Committee on Commerce,
24 Science, and Transportation of the Senate not later
25 than May 31, 2006.



1 (h) BUDGETS.—The proposed budget for NASA sub-
2 mitted by the President for each fiscal year shall be ac-
3 companied by documents showing—

4 (1) the budget for each element of the human
5 space flight program;

6 (2) the budget for aeronautics;

7 (3) the budget for space science;

8 (4) the budget for earth science;

9 (5) the budget for microgravity science;

10 (6) the budget for education;

11 (7) the budget for technology transfer pro-
12 grams;

13 (8) the budget for the Integrated Financial
14 Management Program, by individual element;

15 (9) the budget for the Independent Technical
16 Authority, both total and by center;

17 (10) the budget for public relations, by pro-
18 gram;

19 (11) the comparable figures for at least the 2
20 previous fiscal years for each item in the proposed
21 budget;

22 (12) the amount of unobligated funds and un-
23 expended funds, by appropriations account—

24 (A) that remained at the end of the fiscal
25 year prior to the fiscal year in which the budget



1 is being presented that were carried over into
2 the fiscal year in which the budget is being pre-
3 sented;

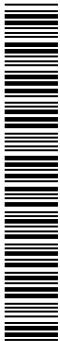
4 (B) that are estimated will remain at the
5 end of the fiscal year in which the budget is
6 being presented that are proposed to be carried
7 over into the fiscal year for which the budget is
8 being presented; and

9 (C) that are estimated will remain at the
10 end of the fiscal year for which the budget is
11 being presented; and

12 (13) the budget for safety, by program.

13 (i) GENERAL AND ADMINISTRATIVE EXPENSES.—
14 NASA shall make available, upon request from the Com-
15 mittee on Science of the House of Representatives or the
16 Committee on Commerce, Science, and Transportation of
17 the Senate, information on Corporate and Center General
18 and Administrative Costs and Service Pool costs,
19 including—

20 (1) the total amount of funds being allocated
21 for those purposes for any fiscal year for which the
22 President has submitted an annual budget request
23 to Congress;



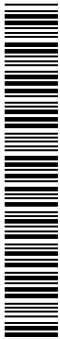
1 (2) the amount of funds being allocated for
2 those purposes for each center, for headquarters,
3 and for each directorate; and

4 (3) the major activities included in each cost
5 category.

6 (j) NASA TEST FACILITIES.—

7 (1) REVIEW.—The Director of the Office of
8 Science and Technology Policy shall commission an
9 independent review of the Nation’s long-term stra-
10 tegic needs for test facilities and shall submit the re-
11 view to the Committee on Science of the House of
12 Representatives and the Committee on Commerce,
13 Science, and Transportation of the Senate. The re-
14 view shall include an evaluation of the facility needs
15 described pursuant to subsection (c)(2)(C).

16 (2) LIMITATION.—The Administrator shall not
17 close or mothball any aeronautical test facilities
18 identified in the 2003 independent assessment by
19 the RAND Corporation, entitled “Wind Tunnel and
20 Propulsion Test Facilities: An Assessment of
21 NASA’s Capabilities to Serve National Needs” as
22 being part of the minimum set of those facilities nec-
23 essary to retain and manage to serve national needs,
24 as well as any other NASA test facilities that were
25 in use as of January 1, 2004, until the review con-



1 ducted under paragraph (1) has been transmitted to
2 the Congress.

3 **SEC. 102. REPORTS.**

4 (a) IMMEDIATE ISSUES.—Not later than September
5 30, 2005, the Administrator shall transmit to the Com-
6 mittee on Science of the House of Representatives and the
7 Committee on Commerce, Science, and Transportation of
8 the Senate a report on each of the following items:

9 (1) The research agenda for the ISS and its
10 proposed final configuration.

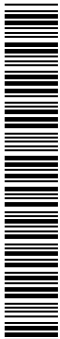
11 (2) The number of flights the Space Shuttle
12 will make before its retirement, the purpose of those
13 flights, and the expected date of the final flight.

14 (3) A description of the means, other than the
15 Space Shuttle, that may be used to ferry crew and
16 cargo to and from the ISS.

17 (4) A plan for the operation of the ISS in the
18 event that the Iran Nonproliferation Act of 2000 is
19 not amended.

20 (5) A description of the launch vehicle for the
21 Crew Exploration Vehicle.

22 (6) A description of any heavy lift vehicle
23 NASA intends to develop, the intended uses of that
24 vehicle, and whether the decision to develop that ve-
25 hicle has undergone an interagency review.



1 (7) A description of the intended purpose of
2 lunar missions and the architecture for those mis-
3 sions.

4 (8) The program goals for Project Prometheus.

5 (9) A plan for managing the cost increase for
6 the James Webb Space Telescope.

7 (b) CREW EXPLORATION VEHICLE.—The Adminis-
8 trator shall not enter into a development contract for the
9 Crew Exploration Vehicle until at least 30 days after the
10 Administrator has transmitted to the Committee on
11 Science of the House of Representatives and the Com-
12 mittee on Commerce, Science, and Transportation of the
13 Senate a report describing—

14 (1) the expected cost of the Crew Exploration
15 Vehicle through fiscal year 2020, based on the speci-
16 fications for that development contract;

17 (2) the expected budgets for each fiscal year
18 through fiscal year 2020 for human space flight,
19 aeronautics, space science, and earth science—

20 (A) first assuming inflationary growth for
21 the budget of NASA as a whole and including
22 costs for the Crew Exploration Vehicle as pro-
23 jected under paragraph (1); and

24 (B) then assuming inflationary growth for
25 the budget of NASA as a whole and including

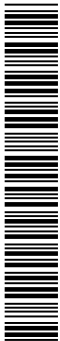


1 at least two cost estimates for the Crew Explo-
2 ration Vehicle that are higher than those pro-
3 jected under paragraph (1), based on NASA's
4 past experience with cost increases for similar
5 programs, along with a description of the rea-
6 sons for selecting the cost estimates used for
7 the calculations under this subparagraph and
8 the probability that the cost of the Crew Explo-
9 ration Vehicle will reach those estimated
10 amounts; and

11 (3) the extent to which the Crew Exploration
12 Vehicle will allow for the escape of the crew in the
13 event of an emergency.

14 (c) SPACE COMMUNICATIONS STUDY.—

15 (1) STUDY.—The Administrator shall develop a
16 plan for updating NASA's space communications ar-
17 chitecture for both low-Earth orbital operations and
18 deep space exploration so that it is capable of meet-
19 ing NASA's needs over the next 20 years. The plan
20 shall also include life-cycle cost estimates, mile-
21 stones, estimated performance capabilities, and 5-
22 year funding profiles. The plan shall also include an
23 estimate of the amounts of any reimbursements
24 NASA is likely to receive from other Federal agen-
25 cies during the expected life of the upgrades de-



1 scribed in the plan. The plan shall include a descrip-
2 tion of the following:

3 (A) Projected Deep Space Network re-
4 quirements for the next decade, including those
5 in support of human space exploration missions.

6 (B) Upgrades needed to support Deep
7 Space Network requirements.

8 (C) Cost estimates for the maintenance of
9 existing Deep Space Network capabilities.

10 (D) Cost estimates and schedules for the
11 upgrades described in subparagraph (B).

12 (2) CONSULTATIONS.—The Administrator shall
13 consult with other relevant Federal agencies in de-
14 veloping the plan under this subsection.

15 (3) REPORT.—The Administrator shall trans-
16 mit the plan under this subsection to the Committee
17 on Science of the House of Representatives and the
18 Committee on Commerce, Science, and Transpor-
19 tation of the Senate not later than February 17,
20 2007.

21 (d) PUBLIC RELATIONS.—Not later than December
22 31, 2005, the Administrator shall transmit a plan to the
23 Committee on Appropriations and the Committee on
24 Science of the House of Representatives, and to the Com-
25 mittee on Appropriations and the Committee on Com-



1 merce, Science, and Transportation of the Senate, describ-
2 ing the activities that will be undertaken as part of the
3 national awareness campaign required by the report of the
4 Committee on Appropriations of the House of Representa-
5 tives accompanying the Science, State, Justice, Commerce,
6 and Related Agencies Appropriations Act, 2006, and the
7 expected cost of those activities. NASA may undertake ac-
8 tivities as part of the national awareness campaign prior
9 to the transmittal of the plan required by this subsection,
10 but not until 15 days after notifying the Committee on
11 Science of the House of Representatives and the Com-
12 mittee on Commerce, Science, and Transportation of the
13 Senate of any activity. The plan required by this sub-
14 section shall include the estimated costs of any activities
15 undertaken pursuant to notice under the preceding sen-
16 tence.

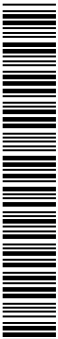
17 (e) JOINT DARK ENERGY MISSION.—The Adminis-
18 trator and the Director of the Department of Energy Of-
19 fice of Science shall jointly transmit to the Committee on
20 Science of the House of Representatives and the Com-
21 mittee on Commerce, Science, and Transportation of the
22 Senate, not later than the date on which the President
23 submits the proposed budget for the Federal Government
24 for fiscal year 2007, a report on plans for a Joint Dark
25 Energy Mission. The report shall include the amount of



1 funds each agency intends to expend on the Joint Dark
2 Energy Mission for each of the fiscal years 2007 through
3 2011, and any specific milestones for the development and
4 launch of the Mission.

5 (f) SHUTTLE EMPLOYEE TRANSITION.—The Admin-
6 istrator shall consult with other appropriate Federal agen-
7 cies and with NASA contractors and employees to develop
8 a transition plan for Federal and contractor personnel en-
9 gaged in the Space Shuttle program. The plan shall in-
10 clude actions to assist Federal and contractor personnel
11 to take advantage of training, retraining, job placement,
12 and relocation programs, and any other actions that
13 NASA will take to assist the employees. The plan shall
14 also describe how the Administrator will ensure that
15 NASA and its contractors will have an appropriate com-
16 plement of employees to allow for the safest possible use
17 of the Space Shuttle through its final flight. The Adminis-
18 trator shall transmit the plan to the Committee on Science
19 of the House of Representatives and the Committee on
20 Commerce, Science, and Transportation of the Senate not
21 later than 90 days after the date of enactment of this Act.

22 (g) OFFICE OF SCIENCE AND TECHNOLOGY POL-
23 ICY.—



1 (1) STUDY.—The Director of the Office of
2 Science and Technology Policy shall conduct a study
3 to determine—

4 (A) if any research and development pro-
5 grams of NASA are unnecessarily duplicating
6 aspects of programs of other Federal agencies;
7 and

8 (B) if any research and development pro-
9 grams of NASA are neglecting any topics of na-
10 tional interest that are related to the mission of
11 NASA.

12 (2) REPORT.—Not later than March 1, 2006,
13 the Director of the Office of Science and Technology
14 Policy shall transmit to the Committee on Science of
15 the House of Representatives and the Committee on
16 Commerce, Science, and Transportation of the Sen-
17 ate a report that—

18 (A) describes the results of the study
19 under paragraph (1);

20 (B) lists the research and development pro-
21 grams of Federal agencies other than NASA
22 that were reviewed as part of the study, which
23 shall include any program supporting research
24 and development in an area related to the pro-



1 grams of NASA, and the most recent budget
2 figures for those programs of other agencies;

3 (C) recommends any changes to the re-
4 search and development programs of NASA
5 that should be made to eliminate unnecessary
6 duplication or address topics of national inter-
7 est; and

8 (D) describes mechanisms the Office of
9 Science and Technology Policy will use to en-
10 sure adequate coordination between NASA and
11 Federal agencies that operate related programs.

12 **SEC. 103. BASELINES AND COST CONTROLS.**

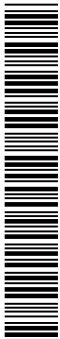
13 (a) CONDITIONS FOR DEVELOPMENT.—

14 (1) IN GENERAL.—NASA shall not enter into a
15 contract for the development phase of a major pro-
16 gram unless the Administrator determines that—

17 (A) the technical, cost, and schedule risks
18 of the program are clearly identified and the
19 program has developed a plan to manage those
20 risks; and

21 (B) the program complies with all relevant
22 policies, regulations, and directives of NASA.

23 (2) REPORT.—The Administrator shall trans-
24 mit a report describing the basis for the determina-
25 tion required under paragraph (1) to the Committee



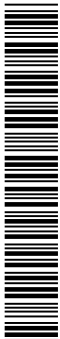
1 on Science of the House of Representatives and the
2 Committee on Commerce, Science, and Transpor-
3 tation of the Senate at least 30 days before entering
4 into a contract for development under a major pro-
5 gram.

6 (3) NONDELEGATION.—The Administrator may
7 not delegate the determination requirement under
8 this subsection.

9 (b) MAJOR PROGRAM ANNUAL REPORTS.—

10 (1) REQUIREMENT.—Not later than February
11 15 of each year following the date of enactment of
12 this Act, the Administrator shall transmit to the
13 Committee on Science of the House of Representa-
14 tives and the Committee on Commerce, Science, and
15 Transportation of the Senate a report on each major
16 program for which NASA proposes to expend funds
17 in the subsequent fiscal year. Reports under this
18 section shall be known as Major Program Annual
19 Reports.

20 (2) BASELINE REPORT.—The first Major Pro-
21 gram Annual Report for each major program shall
22 include a Baseline Report that shall, at a minimum,
23 include—



1 (A) the purposes of the program and key
2 technical characteristics necessary to fulfill
3 those purposes;

4 (B) an estimate of the life-cycle cost for
5 the program, with a detailed breakout of the
6 development cost and an estimate of the annual
7 costs until the development is completed;

8 (C) the schedule for the development, in-
9 cluding key program milestones; and

10 (D) the name of the person responsible for
11 making notifications under subsection (c), who
12 shall be an individual whose primary responsi-
13 bility is overseeing the program.

14 (3) INFORMATION UPDATES.—For major pro-
15 grams with respect to which a Baseline Report has
16 been previously submitted, each subsequent Major
17 Program Annual Report shall describe any changes
18 to the information that had been provided in the
19 Baseline Report, and the reasons for those changes.

20 (c) NOTIFICATION.—

21 (1) REQUIREMENT.—The individual identified
22 under subsection (b)(2)(D) shall immediately notify
23 the Administrator any time that individual has rea-
24 sonable cause to believe that, for the major program
25 for which he or she is responsible—



1 (A) the development cost of the program is
2 likely to exceed the estimate provided in the
3 Baseline Report of the program by 15 percent
4 or more; or

5 (B) a milestone of the program is likely to
6 be delayed by 6 months or more from the date
7 provided for it in the Baseline Report of the
8 program.

9 (2) REASONS.—Not later than 7 days after the
10 notification required under paragraph (1), the indi-
11 vidual identified under subsection (b)(2)(D) shall
12 transmit to the Administrator a written notification
13 explaining the reasons for the change in the cost or
14 milestone of the program for which notification was
15 provided under paragraph (1).

16 (3) NOTIFICATION OF CONGRESS.—Not later
17 than 5 days after the Administrator receives a writ-
18 ten notification under paragraph (2), the Adminis-
19 trator shall transmit the notification to the Com-
20 mittee on Science of the House of Representatives
21 and the Committee on Commerce, Science, and
22 Transportation of the Senate.

23 (d) FIFTEEN PERCENT THRESHOLD.—Not later
24 than 30 days after receiving a written notification under
25 subsection (c)(2), the Administrator shall determine



1 whether the development cost of the program is likely to
2 exceed the estimate provided in the Baseline Report of the
3 program by 15 percent or more, or whether a milestone
4 is likely to be delayed by 6 months or more. If the deter-
5 mination is affirmative, the Administrator shall—

6 (1) transmit to the Committee on Science of the
7 House of Representatives and the Committee on
8 Commerce, Science, and Transportation of the Sen-
9 ate, not later than 14 days after making the deter-
10 mination, a report that includes—

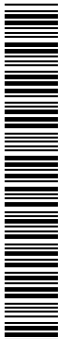
11 (A) a description of the increase in cost or
12 delay in schedule and a detailed explanation for
13 the increase or delay;

14 (B) a description of actions taken or pro-
15 posed to be taken in response to the cost in-
16 crease or delay; and

17 (C) a description of any impacts the cost
18 increase or schedule delay will have on any
19 other program within NASA; and

20 (2) if the Administrator intends to continue
21 with the program, promptly initiate an analysis of
22 the program, which shall include, at a minimum—

23 (A) the projected cost and schedule for
24 completing the program if current requirements
25 of the program are not modified;



1 (B) the projected cost and the schedule for
2 completing the program after instituting the ac-
3 tions described under paragraph (1)(B); and

4 (C) a description of, and the projected cost
5 and schedule for, a broad range of alternatives
6 to the program.

7 NASA shall complete an analysis initiated under para-
8 graph (2) not later than 6 months after the Administrator
9 makes a determination under this subsection. The Admin-
10 istrator shall transmit the analysis to the Committee on
11 Science of the House of Representatives and Committee
12 on Commerce, Science, and Transportation of the Senate
13 not later than 30 days after its completion.

14 (e) THIRTY PERCENT THRESHOLD.—If the Adminis-
15 trator determines under subsection (d) that the develop-
16 ment cost of a program will exceed the estimate provided
17 in the Baseline Report of the program by more than the
18 lower of 30 percent or \$1,000,000,000, then, beginning
19 1 year after the date the Administrator transmits a report
20 under subsection (d)(1), the Administrator shall not ex-
21 pend any additional funds on the program, other than ter-
22 mination costs, unless the Congress has subsequently au-
23 thorized continuation of the program by law. If the pro-
24 gram is continued, the Administrator shall submit a new
25 Baseline Report for the program no later than 90 days



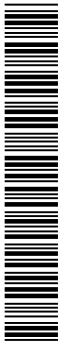
1 after the date of enactment of the Act under which Con-
2 gress has authorized continuation of the program.

3 (f) DEFINITIONS.—For the purposes of this section—

4 (1) the term “development” means the phase of
5 a program following the formulation phase and be-
6 ginning with the approval to proceed to implementa-
7 tion, as defined in NASA’s Procedural Requirements
8 7120.5c, dated March 22, 2005;

9 (2) the term “development cost” means the
10 total of all costs, including construction of facilities
11 and civil servant costs, from the period beginning
12 with the approval to proceed to implementation
13 through the achievement of operational readiness,
14 without regard to funding source or management
15 control, for the life of the program;

16 (3) the term “life-cycle cost” means the total of
17 the direct, indirect, recurring, and nonrecurring
18 costs, including the construction of facilities and civil
19 servant costs, and other related expenses incurred or
20 estimated to be incurred in the design, development,
21 verification, production, operation, maintenance,
22 support, and retirement of a program over its
23 planned lifespan, without regard to funding source
24 or management control; and



1 (4) the term “major program” means an activ-
2 ity approved to proceed to implementation that has
3 an estimated life-cycle cost of more than
4 \$100,000,000.

5 **SEC. 104. PRIZE AUTHORITY.**

6 The National Aeronautics and Space Act of 1958 (42
7 U.S.C. 2451, et seq.) is amended by inserting after section
8 313 the following new section:

9 “PRIZE AUTHORITY

10 “SEC. 314. (a) IN GENERAL.—The Administration
11 may carry out a program to competitively award cash
12 prizes to stimulate innovation in basic and applied re-
13 search, technology development, and prototype demonstra-
14 tion that have the potential for application to the perform-
15 ance of the space and aeronautical activities of the Admin-
16 istration. The Administration may carry out a program
17 to award prizes only in conformity with this section.

18 “(b) TOPICS.—In selecting topics for prize competi-
19 tions, the Administrator shall consult widely both within
20 and outside the Federal Government, and may empanel
21 advisory committees.

22 “(c) ADVERTISING.—The Administrator shall widely
23 advertise prize competitions to encourage participation.

24 “(d) REQUIREMENTS AND REGISTRATION.—For each
25 prize competition, the Administrator shall publish a notice
26 in the Federal Register announcing the subject of the com-



1 petition, the rules for being eligible to participate in the
2 competition, the amount of the prize, and the basis on
3 which a winner will be selected.

4 “(e) ELIGIBILITY.—To be eligible to win a prize
5 under this section, an individual or entity—

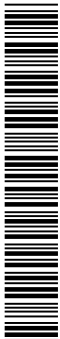
6 “(1) shall have registered to participate in the
7 competition pursuant to any rules promulgated by
8 the Administrator under subsection (d);

9 “(2) shall have complied with all the require-
10 ments under this section;

11 “(3) in the case of a private entity, shall be in-
12 corporated in and maintain a primary place of busi-
13 ness in the United States, and in the case of an in-
14 dividual, whether participating singly or in a group,
15 shall be a citizen or permanent resident of the
16 United States; and

17 “(4) shall not be a Federal entity or Federal
18 employee acting within the scope of their employ-
19 ment.

20 “(f) LIABILITY.—(1) Registered participants must
21 agree to assume any and all risks and waive claims against
22 the United States Government and its related entities, ex-
23 cept in the case of willful misconduct, for any injury,
24 death, damage, or loss of property, revenue, or profits,
25 whether direct, indirect, or consequential, arising from



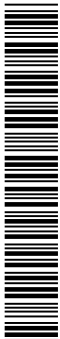
1 their participation in a competition, whether such injury,
2 death, damage, or loss arises through negligence or other-
3 wise. For the purposes of this subparagraph, the term ‘re-
4 lated entity’ means a contractor or subcontractor at any
5 tier, and a supplier, user, customer, cooperating party,
6 grantee, investigator, or detailee.

7 “(2) Participants must obtain liability insurance or
8 demonstrate financial responsibility in amounts to com-
9 pensate for the maximum probable loss, as determined by
10 the Administrator, from claims by—

11 “(A) a third party for death, bodily injury, or
12 property damage, or loss resulting from an activity
13 carried out in connection with participation in a
14 competition, with the Federal Government named as
15 an additional insured under the registered partici-
16 pant’s insurance policy and registered participants
17 agreeing to indemnify the Federal Government
18 against third party claims for damages arising from
19 or related to competition activities; and

20 “(B) the United States Government for damage
21 or loss to Government property resulting from such
22 an activity.

23 “(g) JUDGES.—For each competition, the Adminis-
24 tration, either directly or through a contract under sub-
25 section (h), shall assemble a panel of qualified judges from



1 both within and outside the Administration to select the
2 winner or winners of the prize competition on the basis
3 described pursuant to subsection (d). Judges for each
4 competition shall include individuals from the private sec-
5 tor. A judge may not—

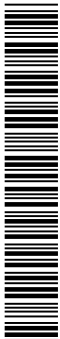
6 “(1) have personal or financial interests in, or
7 be employees, officers, directors, or agents of, any
8 entity that is a registered participant in a competi-
9 tion; or

10 “(2) have a familial or financial relationship
11 with an individual who is a registered participant.

12 “(h) ADMINISTERING THE COMPETITION.—The Ad-
13 ministrator may enter into an agreement with a private,
14 nonprofit entity to administer the prize competition, sub-
15 ject to the provisions of this section.

16 “(i) FUNDING.—(1) The Administrator may accept
17 funds from other Federal agencies and from the private
18 sector for cash prizes under this section. Such funds shall
19 not increase the amount of a prize after the amount has
20 been announced pursuant to subsection (d). The Adminis-
21 trator may not give any special consideration to any pri-
22 vate sector entity in return for a donation.

23 “(2) Funds appropriated for the program under this
24 section shall remain available until expended, and may be
25 transferred, reprogrammed, or expended for other pur-



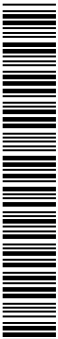
1 poses only after the expiration of 10 fiscal years after the
2 fiscal year for which the funds were originally appro-
3 priated. No provision in this section permits obligation or
4 payment of funds in violation of the Anti-Deficiency Act
5 (31 U.S.C. 1341).

6 “(3) No prize may be announced under subsection
7 (d) until all the funds for that prize have been appro-
8 priated or obligated for such purpose by a private sector
9 source.

10 “(4) No prize competition under this section may
11 offer a prize in an amount greater than \$10,000,000 un-
12 less 30 days have elapsed after written notice has been
13 provided to the Committee on Science of the House of
14 Representatives and the Committee on Commerce,
15 Science, and Transportation of the Senate.

16 “(j) USE OF NASA NAME AND INSIGNIA.—A reg-
17 istered participant in a competition under this section may
18 use the Administration’s name, initials, or insignia only
19 after prior review and written approval by the Administra-
20 tion.

21 “(k) COMPLIANCE WITH EXISTING LAW.—The Fed-
22 eral Government shall not, by virtue of offering or pro-
23 viding a prize under this section, be responsible for compli-
24 ance by registered participants in a prize competition with



1 Federal law, including licensing, export control, and non-
2 proliferation laws, and related regulations.”.

3 **SEC. 105. FOREIGN LAUNCH VEHICLES.**

4 (a) ACCORD WITH SPACE TRANSPORTATION POL-
5 ICY.—NASA shall not launch a mission on a foreign
6 launch vehicle except in accordance with the Space Trans-
7 portation Policy announced by the President on December
8 21, 2004.

9 (b) INTERAGENCY COORDINATION.—NASA shall not
10 launch a mission on a foreign launch vehicle unless NASA
11 commenced the interagency coordination required by the
12 Space Transportation Policy announced by the President
13 on December 21, 2004, at least 90 days before entering
14 into a development contract for the mission.

15 (c) APPLICATION.—This section shall not apply to
16 any mission for which development has begun prior to the
17 date of enactment of this Act, including the James Webb
18 Space Telescope.

19 **SEC. 106. SAFETY MANAGEMENT.**

20 Section 6 of the National Aeronautics and Space Ad-
21 ministration Authorization Act, 1968 (42 U.S.C. 2477) is
22 amended—

23 (1) by inserting “(a) IN GENERAL.—” before
24 “There is hereby”;



1 (2) by striking “plans referred to it” and in-
2 serting “plans referred to it, including evaluating the
3 National Aeronautics and Space Administration’s
4 compliance with the return-to-flight and continue-to-
5 fly recommendations of the Columbia Accident In-
6 vestigation Board,”;

7 (3) by inserting “and the Congress” after “ad-
8 vise the Administrator”;

9 (4) by striking “and with respect to the ade-
10 quacy of proposed or existing safety standards and
11 shall” and inserting “, with respect to the adequacy
12 of proposed or existing safety standards, and with
13 respect to management and culture. The Panel shall
14 also”; and

15 (5) by adding at the end the following:

16 “(b) ANNUAL REPORT.—The Panel shall submit an
17 annual report to the Administrator and to the Congress.
18 In the first annual report submitted after the date of en-
19 actment of the National Aeronautics and Space Adminis-
20 tration Authorization Act of 2005, the Panel shall include
21 an evaluation of the Administration’s safety management
22 culture. Each annual report shall include an evaluation of
23 the Administration’s compliance with the recommenda-
24 tions of the Columbia Accident Investigation Board.”.



1 **SEC. 107. LESSONS LEARNED AND BEST PRACTICES.**

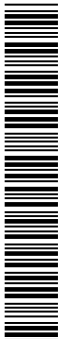
2 (a) IN GENERAL.—The Administrator shall provide
3 an implementation plan describing NASA’s approach for
4 obtaining, implementing, and sharing lessons learned and
5 best practices for its major programs and projects not
6 later than 180 days after the date of enactment of this
7 Act. The implementation plan shall be updated and main-
8 tained to ensure that it is current and consistent with the
9 burgeoning culture of learning and safety that is emerging
10 at NASA.

11 (b) REQUIRED CONTENT.—The implementation plan
12 shall contain at a minimum the lessons learned and best
13 practices requirements for NASA, the organizations or po-
14 sitions responsible for enforcement of the requirements,
15 the reporting structure, and the objective performance
16 measures indicating the effectiveness of the activity.

17 (c) INCENTIVES.—The Administrator shall provide
18 incentives to encourage sharing and implementation of les-
19 sons learned and best practices by employees, projects,
20 and programs, as well as penalties for programs and
21 projects that are determined not to have demonstrated use
22 of those resources.

23 **SEC. 108. COMMERCIALIZATION PLAN.**

24 (a) IN GENERAL.—The Administrator, in consulta-
25 tion with other relevant agencies, shall develop a commer-
26 cialization plan to support the human missions to the



1 Moon and Mars, to support Low-Earth Orbit activities
2 and Earth science missions and applications, and to trans-
3 fer science research and technology to society. The plan
4 shall identify opportunities for the private sector to par-
5 ticipate in the future missions and activities, including op-
6 portunities for partnership between NASA and the private
7 sector in conducting research and the development of tech-
8 nologies and services. The plan shall include provisions for
9 developing and funding sustained university and industry
10 partnerships to conduct commercial research and tech-
11 nology development, to proactively translate results of
12 space research to Earth benefits, to advance United States
13 economic interests, and to support the vision for explo-
14 ration.

15 (b) REPORT.—Not later than 180 days after the date
16 of enactment of this Act, the Administrator shall submit
17 a copy of the plan to the Committee on Science of the
18 House of Representatives and the Committee on Com-
19 merce, Science, and Transportation of the Senate.

20 **SEC. 109. STUDY ON THE FEASIBILITY OF USE OF GROUND**
21 **SOURCE HEAT PUMPS.**

22 (a) IN GENERAL.—The Administrator shall conduct
23 a feasibility study on the use of ground source heat pumps
24 in future NASA facilities or substantial renovation of ex-



1 isting NASA facilities involving the installation of heating,
2 ventilating, and air conditioning systems.

3 (b) CONTENTS.—The study shall examine—

4 (1) the life-cycle costs, including maintenance
5 costs, of the operation of such heat pumps compared
6 to generally available heating, cooling, and water
7 heating equipment;

8 (2) barriers to installation, such as availability
9 and suitability of terrain; and

10 (3) such other issues as the Administrator con-
11 siders appropriate.

12 (c) DEFINITION.—In this section, the term “ground
13 source heat pump” means an electric-powered system that
14 uses the Earth’s relatively constant temperature to pro-
15 vide heating, cooling, or hot water.

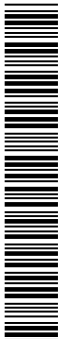
16 **TITLE II—AUTHORIZATION OF** 17 **APPROPRIATIONS**

18 **SEC. 201. STRUCTURE OF BUDGETARY ACCOUNTS.**

19 Section 313 of the National Aeronautics and Space
20 Act of 1958 (42 U.S.C. 2459f) is amended to read as fol-
21 lows:

22 **“SEC. 313. BUDGETARY ACCOUNTS.**

23 “Appropriations for the Administration for fiscal year
24 2007 and thereafter shall be made in four accounts,
25 ‘Science, Aeronautics, and Education’, ‘Exploration Sys-



1 tems', 'Space Operations', and an account for amounts ap-
2 propriated for the necessary expenses of the Office of the
3 Inspector General. Appropriations shall remain available
4 for two fiscal years, unless otherwise specified in law.
5 Each account shall include the planned full costs of Ad-
6 ministration activities.”.

7 **SEC. 202. FISCAL YEAR 2006.**

8 There are authorized to be appropriated to NASA for
9 fiscal year 2006 \$16,471,050,000, as follows:

10 (1) For Science, Aeronautics and Education
11 (including amounts for construction of facilities),
12 \$6,870,250,000 of which—

13 (A) \$962,000,000 shall be for Aeronautics;

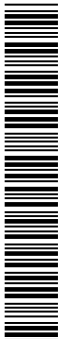
14 (B) \$150,000,000 shall be for a Hubble
15 Space Telescope servicing mission; and

16 (C) \$24,000,000 shall be for the National
17 Space Grant College and Fellowship Program.

18 (2) For Exploration Systems (including
19 amounts for construction of facilities),
20 \$3,181,100,000.

21 (3) For Space Operations (including amounts
22 for construction of facilities), \$6,387,300,000.

23 (4) For the Office of Inspector General,
24 \$32,400,000.



1 **SEC. 203. FISCAL YEAR 2007.**

2 There are authorized to be appropriated to NASA for
3 fiscal year 2007 \$16,962,000,000, as follows:

4 (1) For Science, Aeronautics and Education
5 (including amounts for construction of facilities),
6 \$7,331,600,000 of which—

7 (A) \$990,000,000 shall be for Aeronautics;
8 and

9 (B) \$24,000,000 shall be for the National
10 Space Grant College and Fellowship Program.

11 (2) For Exploration Systems (including
12 amounts for construction of facilities),
13 \$3,589,200,000.

14 (3) For Space Operations (including amounts
15 for construction of facilities), \$6,007,700,000.

16 (4) For the Office of Inspector General,
17 \$33,500,000.

18 **SEC. 204. ISS RESEARCH.**

19 The Administrator shall allocate at least 15 percent
20 of the funds budgeted for ISS research to research that
21 is not directly related to supporting the human exploration
22 program.

23 **SEC. 205. TEST FACILITIES.**

24 (a) CHARGES.—The Administrator shall establish a
25 policy of charging users of NASA's test facilities for the
26 costs associated with their tests at a level that is competi-



1 tive with alternative test facilities. As a general principle,
2 NASA shall not seek to recover the full costs of the oper-
3 ation of those facilities from the users. The Administrator
4 shall not implement a policy of seeking full cost recovery
5 for a facility until at least 30 days after transmitting a
6 notice to the Committee on Science of the House of Rep-
7 resentatives and the Committee on Commerce, Science,
8 and Transportation of the Senate.

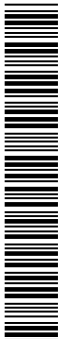
9 (b) **FUNDING ACCOUNT.**—The Administrator shall
10 establish a funding account that shall be used for all test
11 facilities. The account shall be sufficient to maintain the
12 viability of test facilities during periods of low utilization.

13 **SEC. 206. PROPORTIONALITY.**

14 If the total amount appropriated for NASA pursuant
15 to section 202 or 203 is less than the amount authorized
16 under such section, the amounts authorized under each
17 of the accounts specified in such section shall be reduced
18 proportionately.

19 **SEC. 207. LIMITATIONS ON AUTHORITY.**

20 Notwithstanding any other provision of this Act, no
21 amount appropriated pursuant to this Act may be used
22 for any program in excess of the amount actually author-
23 ized for the particular program by section 202 or 203,
24 unless a period of 30 days has passed after the receipt,
25 by each such Committee, of notice given by the Adminis-



1 trator containing a full and complete statement of the ac-
2 tion proposed to be taken and the facts and circumstances
3 relied upon in support of such a proposed action. NASA
4 shall keep the Committee on Science of the House of Rep-
5 resentatives and the Committee on Commerce, Science,
6 and Transportation of the Senate fully and currently in-
7 formed with respect to all activities and responsibilities
8 within the jurisdiction of those Committees.

9 **SEC. 208. NOTICE OF REPROGRAMMING.**

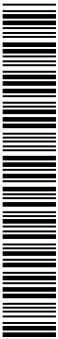
10 If any funds authorized by this Act are subject to
11 a reprogramming action that requires notice to be pro-
12 vided to the Appropriations Committees of the House of
13 Representatives and the Senate, notice of such action shall
14 concurrently be provided to the Committee on Science of
15 the House of Representatives and the Committee on Com-
16 merce, Science, and Transportation of the Senate.

17 **SEC. 209. COST OVERRUNS.**

18 When reprogramming funds to cover unexpected cost
19 growth within a program, the Administrator shall, to the
20 maximum extent practicable, protect funds intended for
21 fundamental and applied Research and Analysis.

22 **SEC. 210. OFFICIAL REPRESENTATIONAL FUND.**

23 Amounts appropriated pursuant to this Act may be
24 used, but not to exceed a total of \$35,000 in any fiscal
25 year, for official reception and representation expenses.



1 **SEC. 211. INTERNATIONAL SPACE STATION COST CAP.**

2 Section 202 of the National Aeronautics and Space
3 Administration Authorization Act of 2000 (42 U.S.C.
4 2451 note) is repealed.

5 **TITLE III—SCIENCE**

6 **Subtitle A—General Provisions**

7 **SEC. 301. PERFORMANCE ASSESSMENTS.**

8 (a) IN GENERAL.—Performance of each discipline in
9 the Science account of NASA shall be reviewed and as-
10 sessed by the National Academy of Sciences at 5-year in-
11 tervals.

12 (b) TIMING.—Beginning with the first fiscal year fol-
13 lowing the date of enactment of this Act, the Adminis-
14 trator shall select at least one discipline for review under
15 this section. The Administrator shall select disciplines so
16 that all disciplines will have received their first review
17 within six fiscal years of the date of enactment of this
18 Act.

19 (c) REPORTS.—Each year, beginning with the first
20 fiscal year after the date of enactment of this Act, the
21 Administrator shall transmit a report to the Committee
22 on Science of the House of Representatives and the Com-
23 mittee on Commerce, Science, and Transportation of the
24 Senate—

25 (1) setting forth in detail the results of any ex-
26 ternal review under subsection (a);



1 (2) setting forth in detail actions taken by
2 NASA in response to any external review; and
3 (3) including a summary of findings and rec-
4 ommendations from any other relevant external re-
5 views of NASA's science mission priorities and pro-
6 grams.

7 **SEC. 302. STATUS REPORT ON HUBBLE SPACE TELESCOPE**
8 **SERVICING MISSION.**

9 It is the sense of the Congress that the Hubble Space
10 Telescope is an extraordinary instrument that has pro-
11 vided, and should continue to provide, answers to profound
12 scientific questions. In accordance with the recommenda-
13 tions of the National Academy of Sciences, all appropriate
14 efforts should be expended to complete the Space Shuttle
15 servicing mission. Upon successful completion of the
16 planned return-to-flight schedule of the Space Shuttle, the
17 schedule for a Space Shuttle servicing mission to the
18 Hubble Space Telescope shall be determined, unless such
19 a mission would compromise astronaut safety. Not later
20 than 60 days after the landing of the second Space Shuttle
21 mission for return-to-flight certification, the Adminis-
22 trator shall transmit to the Committee on Science of the
23 House of Representatives and the Committee on Com-
24 merce, Science, and Transportation of the Senate a status

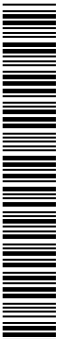


1 report on plans for a Hubble Space Telescope servicing
2 mission.

3 **SEC. 303. INDEPENDENT ASSESSMENT OF LANDSAT-**
4 **NPOESS INTEGRATED MISSION.**

5 (a) ASSESSMENT.—In view of the importance of en-
6 suring continuity of Landsat data and in view of the chal-
7 lenges facing the National Polar-Orbiting Environmental
8 Satellite System program, the Administrator shall seek an
9 independent assessment of the costs as well as the tech-
10 nical, cost, and schedule risks associated with incor-
11 porating the Landsat instrument on the first National
12 Polar-Orbiting Environmental Satellite System spacecraft
13 versus undertaking a dedicated Landsat data “gap-filler”
14 mission followed by the incorporation of the Landsat in-
15 strument on the second National Polar-Orbiting Environ-
16 mental Satellite System spacecraft. The assessment shall
17 also include an evaluation of the budgetary requirements
18 of each of the options under consideration.

19 (b) REPORT.—The Administrator shall transmit the
20 independent assessment to the Committee on Science of
21 the House of Representatives and the Committee on Com-
22 merce, Science, and Transportation of the Senate not later
23 than 180 days after the date of enactment of this Act.



1 **SEC. 304. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

2 (a) ASSESSMENT.—The Administrator shall carry out
3 annual termination reviews within each of the Science dis-
4 ciplines to assess the cost and benefits of extending the
5 date of the termination of data collection for those mis-
6 sions which are beyond their primary goals. In addition:

7 (1) Not later than 60 days after the date of en-
8 actment of this Act, the Administrator shall carry
9 out such an assessment for the following missions:
10 FAST, TIMED, Cluster, Wind, Geotail, Polar,
11 TRACE, Ulysses, and Voyager.

12 (2) For those missions that have an operational
13 component, the National Oceanic and Atmospheric
14 Administration shall be consulted and the potential
15 benefits of instruments on missions which are be-
16 yond their primary goals taken into account.

17 (b) REPORT.—Not later than 30 days after com-
18 pleting the assessments required by subsection (a)(1), the
19 Administrator shall transmit a report on the assessment
20 to the Committee on Science of the House of Representa-
21 tives and the Committee on Commerce, Science, and
22 Transportation of the Senate.

23 **SEC. 305. MICROGRAVITY RESEARCH.**

24 (a) IN GENERAL.—The Administrator shall—

25 (1) not later than 60 days after the date of en-
26 actment of this Act, provide to the Committee on

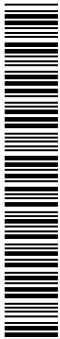


1 Science of the House of Representatives and the
2 Committee on Commerce, Science, and Transpor-
3 tation of the Senate an assessment of microgravity
4 research planned for implementation aboard the ISS
5 that includes the identification of research which can
6 be performed in ground-based facilities and then
7 validated in space;

8 (2) ensure the capacity to support ground-based
9 research leading to space-based basic and applied
10 scientific research in a variety of disciplines with po-
11 tential direct national benefits and applications that
12 can advance significantly from the uniqueness of
13 microgravity and the space environment; and

14 (3) carry out, to the maximum extent prac-
15 ticable basic, applied, and commercial ISS research
16 activities such as molecular crystal growth, animal
17 research, basic fluid physics, combustion research,
18 cellular biotechnology, low temperature physics, and
19 cellular research at a level which will sustain the ex-
20 isting scientific expertise and research capabilities.

21 (b) ON-ORBIT CAPABILITIES.—The Administrator
22 shall ensure that the on-orbit analytical capabilities of the
23 ISS are sufficient to support any diagnostic human re-
24 search and on-orbit characterization of molecular crystal
25 growth, cellular research, and other research that NASA



1 believes is necessary to conduct, but for which NASA lacks
2 the capacity to return the materials that need to be ana-
3 lyzed to Earth.

4 (c) ASSESSMENT OF POTENTIAL SCIENTIFIC
5 USES.—The Administrator shall assess further potential
6 scientific uses of the ISS for other applications, such as
7 technology development, development of manufacturing
8 processes, Earth observation and characterization, and as-
9 tronomical observations.

10 **SEC. 306. COORDINATION WITH THE NATIONAL OCEANIC**
11 **AND ATMOSPHERIC ADMINISTRATION.**

12 (a) JOINT WORKING GROUP.—The Administrator
13 and the Administrator of the National Oceanic and At-
14 mospheric Administration shall appoint a Joint Working
15 Group, which shall review and monitor missions of the two
16 agencies to ensure maximum coordination in the design,
17 operation, and transition of missions. The Joint Working
18 Group shall also prepare the transition plans required by
19 subsection (c).

20 (b) COORDINATION REPORT.—Not later than Feb-
21 ruary 15 of each year, the Under Secretary of Commerce
22 for Oceans and Atmosphere and the Administrator shall
23 jointly transmit a report to the Committee on Science of
24 the House of Representatives and the Committee on Com-
25 merce, Science, and Transportation of the Senate on how



1 the earth science programs of the National Oceanic and
2 Atmospheric Administration and NASA will be coordi-
3 nated during the fiscal year following the fiscal year in
4 which the report is transmitted.

5 (c) COORDINATION OF TRANSITION PLANNING AND
6 REPORTING.—The Administrator, in conjunction with the
7 Administrator of the National Oceanic and Atmospheric
8 Administration, shall evaluate all NASA missions for their
9 potential operational capabilities and shall prepare transi-
10 tion plans for all existing and future Earth observing sys-
11 tems found to have potential operational capabilities and
12 all National Oceanic and Atmospheric Administration
13 operational space-based systems.

14 (d) LIMITATION.—The Administrator shall not trans-
15 fer any NASA earth science mission or Earth observing
16 system to the National Oceanic and Atmospheric Adminis-
17 tration until the transition plan required under subsection
18 (c) has been approved by the Administrator and the Ad-
19 ministrator of the National Oceanic and Atmospheric Ad-
20 ministration and until financial resources have been iden-
21 tified to support the transition or transfer in the Presi-
22 dent's budget request for the National Oceanic and At-
23 mospheric Administration.



1 **Subtitle B—Remote Sensing**

2 **SEC. 311. DEFINITIONS.**

3 In this subtitle—

4 (1) the term “geospatial information” means
5 knowledge of the nature and distribution of physical
6 and cultural features on the landscape based on
7 analysis of data from airborne or spaceborne plat-
8 forms or other types and sources of data;

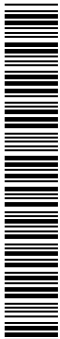
9 (2) the term “high resolution” means resolution
10 better than five meters; and

11 (3) the term “institution of higher education”
12 has the meaning given that term in section 101(a)
13 of the Higher Education Act of 1965 (20 U.S.C.
14 1001(a)).

15 **SEC. 312. PILOT PROJECTS TO ENCOURAGE PUBLIC SEC-**
16 **TOR APPLICATIONS.**

17 (a) IN GENERAL.—The Administrator shall establish
18 a program of grants for competitively awarded pilot
19 projects to explore the integrated use of sources of remote
20 sensing and other geospatial information to address State,
21 local, regional, and tribal agency needs.

22 (b) PREFERRED PROJECTS.—In awarding grants
23 under this section, the Administrator shall give preference
24 to projects that—



1 (1) make use of commercial data sets, including
2 high resolution commercial satellite imagery and de-
3 rived satellite data products, existing public data
4 sets where commercial data sets are not available or
5 applicable, or the fusion of such data sets;

6 (2) integrate multiple sources of geospatial in-
7 formation, such as geographic information system
8 data, satellite-provided positioning data, and re-
9 motely sensed data, in innovative ways;

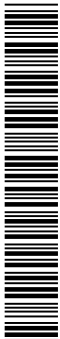
10 (3) include funds or in-kind contributions from
11 non-Federal sources;

12 (4) involve the participation of commercial enti-
13 ties that process raw or lightly processed data, often
14 merging that data with other geospatial information,
15 to create data products that have significant value
16 added to the original data; and

17 (5) taken together demonstrate as diverse a set
18 of public sector applications as possible.

19 (c) OPPORTUNITIES.—In carrying out this section,
20 the Administrator shall seek opportunities to assist—

21 (1) in the development of commercial applica-
22 tions potentially available from the remote sensing
23 industry; and



1 (2) State, local, regional, and tribal agencies in
2 applying remote sensing and other geospatial infor-
3 mation technologies for growth management.

4 (d) DURATION.—Assistance for a pilot project under
5 subsection (a) shall be provided for a period not to exceed
6 3 years.

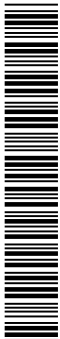
7 (e) REPORT.—Each recipient of a grant under sub-
8 section (a) shall transmit a report to the Administrator
9 on the results of the pilot project within 180 days of the
10 completion of that project.

11 (f) WORKSHOP.—Each recipient of a grant under
12 subsection (a) shall, not later than 180 days after the com-
13 pletion of the pilot project, conduct at least one workshop
14 for potential users to disseminate the lessons learned from
15 the pilot project as widely as feasible.

16 (g) REGULATIONS.—The Administrator shall issue
17 regulations establishing application, selection, and imple-
18 mentation procedures for pilot projects, and guidelines for
19 reports and workshops required by this section.

20 **SEC. 313. PROGRAM EVALUATION.**

21 (a) ADVISORY COMMITTEE.—The Administrator
22 shall establish an advisory committee, consisting of indi-
23 viduals with appropriate expertise in State, local, regional,
24 and tribal agencies, the university research community,
25 and the remote sensing and other geospatial information



1 industry, to monitor the program established under sec-
2 tion 312. The advisory committee shall consult with the
3 Federal Geographic Data Committee and other appro-
4 priate industry representatives and organizations. Not-
5 withstanding section 14 of the Federal Advisory Com-
6 mittee Act, the advisory committee established under this
7 subsection shall remain in effect until the termination of
8 the program under section 312.

9 (b) EFFECTIVENESS EVALUATION.—Not later than
10 December 31, 2009, the Administrator shall transmit to
11 the Congress an evaluation of the effectiveness of the pro-
12 gram established under section 312 in exploring and pro-
13 moting the integrated use of sources of remote sensing
14 and other geospatial information to address State, local,
15 regional, and tribal agency needs. Such evaluation shall
16 have been conducted by an independent entity.

17 **SEC. 314. DATA AVAILABILITY.**

18 The Administrator shall ensure that the results of
19 each of the pilot projects completed under section 312
20 shall be retrievable through an electronic, Internet-acces-
21 sible database.

22 **SEC. 315. EDUCATION.**

23 The Administrator shall establish an educational out-
24 reach program to increase awareness at institutions of
25 higher education and State, local, regional, and tribal



1 agencies of the potential applications of remote sensing
2 and other geospatial information.

3 **Subtitle C—George E. Brown, Jr.**
4 **Near-Earth Object Survey**

5 **SEC. 321. GEORGE E. BROWN, JR. NEAR-EARTH OBJECT**
6 **SURVEY.**

7 (a) SHORT TITLE.—This section may be cited as the
8 “George E. Brown, Jr. Near-Earth Object Survey Act”.

9 (b) FINDINGS.—The Congress makes the following
10 findings:

11 (1) Near-Earth objects pose a serious and cred-
12 ible threat to humankind, as many scientists believe
13 that a major asteroid or comet was responsible for
14 the mass extinction of the majority of the Earth’s
15 species, including the dinosaurs, nearly 65,000,000
16 years ago.

17 (2) Similar objects have struck the Earth or
18 passed through the Earth’s atmosphere several times
19 in the Earth’s history and pose a similar threat in
20 the future.

21 (3) Several such near-Earth objects have only
22 been discovered within days of the objects’ closest
23 approach to Earth, and recent discoveries of such
24 large objects indicate that many large near-Earth
25 objects remain undiscovered.



1 (4) The efforts taken to date by NASA for de-
2 tecting and characterizing the hazards of near-Earth
3 objects are not sufficient to fully determine the
4 threat posed by such objects to cause widespread de-
5 struction and loss of life.

6 (c) DEFINITIONS.—For purposes of this section the
7 term “near-Earth object” means an asteroid or comet with
8 a perihelion distance of less than 1.3 Astronomical Units
9 from the Sun.

10 (d) NEAR-EARTH OBJECT SURVEY.—

11 (1) SURVEY PROGRAM.—The Administrator
12 shall plan, develop, and implement a Near-Earth
13 Object Survey program to detect, track, catalogue,
14 and characterize the physical characteristics of near-
15 Earth objects equal to or greater than 100 meters
16 in diameter in order to assess the threat of such
17 near-Earth objects to the Earth. It shall be the goal
18 of the Survey program to achieve 90 percent comple-
19 tion of its near-Earth object catalogue (based on sta-
20 tistically predicted populations of near-Earth ob-
21 jects) within 15 years after the date of enactment of
22 this Act.

23 (2) AMENDMENTS.—Section 102 of the Na-
24 tional Aeronautics and Space Act of 1958 (42
25 U.S.C. 2451) is amended—



1 (A) by redesignating subsection (g) as sub-
2 section (h);

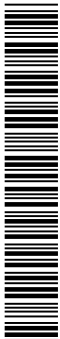
3 (B) by inserting after subsection (f) the
4 following new subsection:

5 “(g) The Congress declares that the general welfare
6 and security of the United States require that the unique
7 competence of the National Aeronautics and Space Ad-
8 ministration be directed to detecting, tracking, cata-
9 loguing, and characterizing near-Earth asteroids and com-
10 ets in order to provide warning and mitigation of the po-
11 tential hazard of such near-Earth objects to the Earth.”;
12 and

13 (C) in subsection (h), as so redesignated
14 by subparagraph (A) of this paragraph, by
15 striking “and (f)” and inserting “(f), and (g)”.

16 (3) ANNUAL REPORT.—The Administrator shall
17 transmit to the Congress, not later than February
18 28 of each of the next 5 years beginning after the
19 date of enactment of this Act, a report that provides
20 the following:

21 (A) A summary of all activities taken pur-
22 suant to paragraph (1) for the previous fiscal
23 year.



1 (B) A summary of expenditures for all ac-
2 tivities pursuant to paragraph (1) for the pre-
3 vious fiscal year.

4 (4) INITIAL REPORT.—The Administrator shall
5 transmit to Congress not later than 1 year after the
6 date of enactment of this Act an initial report that
7 provides the following:

8 (A) An analysis of possible alternatives
9 that NASA may employ to carry out the Survey
10 program, including ground-based and space-
11 based alternatives with technical descriptions.

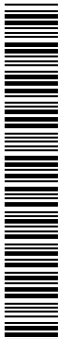
12 (B) A recommended option and proposed
13 budget to carry out the Survey program pursu-
14 ant to the recommended option.

15 (C) An analysis of possible alternatives
16 that NASA could employ to divert an object on
17 a likely collision course with Earth.

18 **TITLE IV—AERONAUTICS**

19 **SEC. 401. DEFINITION.**

20 For purposes of this title, the term “institution of
21 higher education” has the meaning given that term by sec-
22 tion 101 of the Higher Education Act of 1965 (20 U.S.C.
23 1001).



1 **Subtitle A—National Policy for**
2 **Aeronautics Research and De-**
3 **velopment**

4 **SEC. 411. POLICY.**

5 It shall be the policy of the United States to reaffirm
6 the National Aeronautics and Space Act of 1958 and its
7 identification of aeronautical research and development as
8 a core mission of NASA. Further, it shall be the policy
9 of the United States to promote aeronautical research and
10 development that will expand the capacity, ensure the
11 safety, and increase the efficiency of the Nation's air
12 transportation system, promote the security of the Nation,
13 protect the environment, and retain the leadership of the
14 United States in global aviation.

15 **Subtitle B—NASA Aeronautics**
16 **Breakthrough Research Initiatives**

17 **SEC. 421. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**
18 **VELOPMENT INITIATIVE.**

19 (a) OBJECTIVE.—The Administrator may establish
20 an initiative with the objective of developing, and dem-
21 onstrating in a relevant environment, within 10 years after
22 the date of enactment of this Act, technologies to enable
23 the following commercial aircraft performance characteris-
24 ties:



1 (1) NOISE.—Noise levels on takeoff and on air-
2 port approach and landing that do not exceed ambi-
3 ent noise levels in the absence of flight operations in
4 the vicinity of airports from which such commercial
5 aircraft would normally operate.

6 (2) ENERGY CONSUMPTION.—Twenty-five per-
7 cent reduction in the energy required for medium to
8 long range flights, compared to aircraft in commer-
9 cial service as of the date of enactment of this Act.
10 This reduction may be achieved by a combination of
11 improvements to—

12 (A) specific fuel consumption;

13 (B) lift-to-drag ratio; and

14 (C) structural weight fraction.

15 (3) EMISSIONS.—Nitrogen oxides on take-off
16 and landing that are reduced by 50 percent relative
17 to aircraft in commercial service as of the date of
18 enactment of this Act.

19 (b) STUDY.—

20 (1) REQUIREMENT.—The Administrator shall
21 enter into an arrangement for the National Research
22 Council to conduct a study to identify and quantify
23 new markets that would be created, as well as exist-
24 ing markets that would be expanded, by the incorpo-
25 ration of the technologies developed pursuant to this



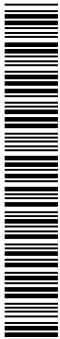
1 section into future commercial aircraft. The study
2 shall identify whether any of the performance char-
3 acteristics specified in subsection (a) would need to
4 be made more stringent in order to create new mar-
5 kets or expand existing markets. The National Re-
6 search Council shall seek input from at least the air-
7 craft manufacturing industry, academia, and the air-
8 lines in carrying out the study.

9 (2) REPORT.—A report containing the results
10 of the study conducted under paragraph (1) shall be
11 provided to Congress not later than 18 months after
12 the date of enactment of this Act.

13 **SEC. 422. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**
14 **DEVELOPMENT INITIATIVE.**

15 The Administrator may establish an initiative with
16 the objective of developing, and demonstrating in a rel-
17 evant environment, within 20 years after the date of enact-
18 ment of this Act, technologies to enable overland flight of
19 supersonic civil transport aircraft with at least the fol-
20 lowing performance characteristics:

- 21 (1) Mach number of at least 1.4.
22 (2) Range of at least 4,000 nautical miles.
23 (3) Payload of at least 24 passengers.
24 (4) Noise levels on takeoff and on airport ap-
25 proach and landing that meet community noise



1 standards in place at airports from which such com-
2 mercial supersonic aircraft would normally operate
3 at the time the aircraft would enter commercial serv-
4 ice.

5 (5) Shaped sonic boom signatures sufficiently
6 low to permit overland flight over populated areas.

7 (6) Nitrogen oxide, carbon dioxide, and water
8 vapor emissions consistent with regulations likely to
9 be in effect at the time of this aircraft's introduc-
10 tion.

11 **SEC. 423. ROTORCRAFT AND OTHER RUNWAY-INDE-**
12 **PENDENT AIR VEHICLES RESEARCH AND DE-**
13 **VELOPMENT INITIATIVE.**

14 The Administrator may establish a rotorcraft and
15 other runway-independent air vehicles initiative with the
16 objective of developing and demonstrating in a relevant en-
17 vironment, within 10 years after the date of enactment
18 of this Act, technologies to enable significantly safer,
19 quieter, and more environmentally compatible operation
20 from a wider range of airports under a wider range of
21 weather conditions than is the case for rotorcraft and
22 other runway-independent air vehicles in service as of the
23 date of enactment of this Act.



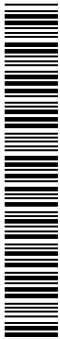
1 **Subtitle C—Other NASA Aero-**
2 **nautics Research and Develop-**
3 **ment Activities**

4 **SEC. 431. FUNDAMENTAL RESEARCH AND TECHNOLOGY**
5 **BASE PROGRAM.**

6 (a) OBJECTIVE.—In order to ensure that the Nation
7 maintains needed capabilities in fundamental areas of
8 aeronautical research, the Administrator shall establish a
9 program of long-term fundamental research in aero-
10 nautical sciences and technologies that is not tied to spe-
11 cific development projects.

12 (b) ASSESSMENT.—The Administrator shall enter
13 into an arrangement with the National Research Council
14 for an assessment of the Nation's future requirements for
15 fundamental aeronautics research and whether the Nation
16 will have a skilled research workforce and research facili-
17 ties commensurate with those requirements. The assess-
18 ment shall include an identification of any projected gaps,
19 and recommendations for what steps should be taken by
20 the Federal Government to eliminate those gaps.

21 (c) REPORT.—The Administrator shall transmit the
22 assessment, along with NASA's response to the assess-
23 ment, to Congress not later than 2 years after the date
24 of enactment of this Act.



1 **SEC. 432. AIRSPACE SYSTEMS RESEARCH.**

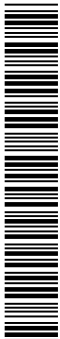
2 (a) OBJECTIVE.—The Airspace Systems Research
3 program shall pursue research and development to enable
4 revolutionary improvements to and modernization of the
5 National Airspace System, as well as to enable the intro-
6 duction of new systems for vehicles that can take advan-
7 tage of an improved, modern air transportation system.

8 (b) ALIGNMENT.—Not later than 2 years after the
9 date of enactment of this Act, the Administrator shall
10 align the projects of the Airspace Systems Research pro-
11 gram so that they directly support the objectives of the
12 Joint Planning and Development Office’s Next Generation
13 Air Transportation System Integrated Plan.

14 **SEC. 433. AVIATION SAFETY AND SECURITY RESEARCH.**

15 (a) OBJECTIVE.—The Aviation Safety and Security
16 Research program shall pursue research and development
17 activities that directly address the safety and security
18 needs of the National Airspace System and the aircraft
19 that fly in it. The program shall develop prevention, inter-
20 vention, and mitigation technologies aimed at causal, con-
21 tributory, or circumstantial factors of aviation accidents.

22 (b) PLAN.—Not later than 1 year after the date of
23 enactment of this Act, the Administrator shall transmit
24 to Congress a 5-year prioritized plan for the research to
25 be conducted within the Aviation Safety and Security Re-
26 search program. The plan shall be aligned with the objec-



1 tives of the Joint Planning and Development Office's Next
2 Generation Air Transportation System Integrated Plan.

3 **SEC. 434. ZERO-EMISSIONS AIRCRAFT RESEARCH.**

4 (a) OBJECTIVE.—The Administrator may establish a
5 zero-emissions aircraft research program whose objective
6 shall be to develop and test concepts to enable a hydrogen
7 fuel cell-powered aircraft that would have no hydrocarbon
8 or nitrogen oxide emissions into the environment.

9 (b) APPROACH.—The Administrator may establish a
10 program of competitively awarded grants available to
11 teams of researchers that may include the participation
12 of individuals from universities, industry, and government
13 for the conduct of this research.

14 **SEC. 435. MARS AIRCRAFT RESEARCH.**

15 (a) OBJECTIVE.—The Administrator may establish a
16 Mars Aircraft project whose objective shall be to develop
17 and test concepts for an uncrewed aircraft that could oper-
18 ate for sustained periods in the atmosphere of Mars.

19 (b) APPROACH.—The Administrator may establish a
20 program of competitively awarded grants available to
21 teams of researchers that may include the participation
22 of individuals from universities, industry, and government
23 for the conduct of this research.



1 **SEC. 436. HYPERSONICS RESEARCH.**

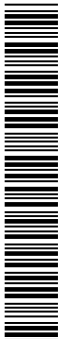
2 The Administrator may establish a hypersonics re-
3 search program whose objective shall be to explore the
4 science and technology of hypersonic flight using air-
5 breathing propulsion concepts, through a mix of theo-
6 retical work, basic and applied research, and development
7 of flight research demonstration vehicles.

8 **SEC. 437. NASA AERONAUTICS SCHOLARSHIPS.**

9 (a) ESTABLISHMENT.—The Administrator shall es-
10 tablish a program of scholarships for full-time graduate
11 students who are United States citizens and are enrolled
12 in, or have been accepted by and have indicated their in-
13 tention to enroll in, accredited Masters degree programs
14 in aeronautical engineering at institutions of higher edu-
15 cation. Each such scholarship shall cover the costs of
16 room, board, tuition, and fees, and may be provided for
17 a maximum of 2 years.

18 (b) IMPLEMENTATION.—Not later than 180 days
19 after the date of enactment of this Act, the Administrator
20 shall publish regulations governing the scholarship pro-
21 gram under this section.

22 (c) COOPERATIVE TRAINING OPPORTUNITIES.—Stu-
23 dents who have been awarded a scholarship under this sec-
24 tion shall have the opportunity for paid employment at
25 one of the NASA Centers engaged in aeronautics research
26 and development during the summer prior to the first year



1 of the student's Masters program, and between the first
2 and second year, if applicable.

3 **SEC. 438. AVIATION WEATHER RESEARCH.**

4 The Administrator may carry out a program of col-
5 laborative research with the National Oceanic and Atmos-
6 pheric Administration on convective weather events, with
7 the goal of significantly improving the reliability of 2-hour
8 to 6-hour aviation weather forecasts.

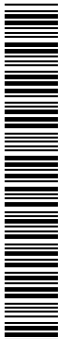
9 **SEC. 439. ASSESSMENT OF WAKE TURBULENCE RESEARCH**
10 **AND DEVELOPMENT PROGRAM.**

11 (a) ASSESSMENT.—The Administrator shall enter
12 into an arrangement with the National Research Council
13 for an assessment of Federal wake turbulence research
14 and development programs. The assessment shall address
15 at least the following questions:

16 (1) Are the Federal research and development
17 goals and objectives well defined?

18 (2) Are there any deficiencies in the Federal re-
19 search and development goals and objectives?

20 (3) What roles should be played by each of the
21 relevant Federal agencies, such as NASA, the Fed-
22 eral Aviation Administration, and the National Oce-
23 anic and Atmospheric Administration, in wake tur-
24 bulence research and development?



1 (b) REPORT.—A report containing the results of the
2 assessment conducted pursuant to subsection (a) shall be
3 provided to Congress not later than 1 year after the date
4 of enactment of this Act.

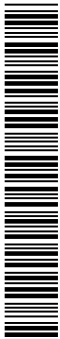
5 **SEC. 440. UNIVERSITY-BASED CENTERS FOR RESEARCH ON**
6 **AVIATION TRAINING.**

7 (a) IN GENERAL.—The Administrator may award
8 grants to institutions of higher education (or consortia
9 thereof) to establish one or more Centers for Research on
10 Aviation Training under cooperative agreements with ap-
11 propriate NASA Centers.

12 (b) PURPOSE.—The purpose of the Centers shall be
13 to investigate the impact of new technologies and proce-
14 dures, particularly those related to the aircraft flight deck
15 and to the air traffic management functions, on training
16 requirements for pilots and air traffic controllers.

17 (c) APPLICATION.—An institution of higher edu-
18 cation (or a consortium of such institutions) seeking fund-
19 ing under this section shall submit an application to the
20 Administrator at such time, in such manner, and con-
21 taining such information as the Administrator may re-
22 quire, including, at a minimum, a 5-year research plan.

23 (d) AWARD DURATION.—An award made by the Ad-
24 ministrator under this section shall be for a period of 5
25 years and may be renewed on the basis of—



1 (1) satisfactory performance in meeting the
2 goals of the research plan proposed by the Center in
3 its application under subsection (c); and

4 (2) other requirements as specified by the Ad-
5 ministrator.

6 **TITLE V—HUMAN SPACE FLIGHT**

7 **SEC. 501. INTERNATIONAL SPACE STATION COMPLETION.**

8 (a) ELEMENTS, CAPABILITIES, AND CONFIGURATION
9 CRITERIA.—The Administrator shall ensure that the ISS
10 will be able to—

11 (1) be used for a diverse range of microgravity
12 research, including fundamental, applied, and com-
13 mercial research;

14 (2) have an ability to support crew size of at
15 least 6 persons;

16 (3) support Crew Exploration Vehicle docking
17 and automated docking of cargo vehicles or modules
18 launched by either heavy-lift or commercially-devel-
19 oped launch vehicles; and

20 (4) be operated at an appropriate risk level.

21 (b) CONTINGENCY PLAN.—The transportation plan
22 to support ISS shall include contingency options to ensure
23 sufficient logistics and on-orbit capabilities to support any
24 potential period during which the Space Shuttle or its fol-
25 low-on crew and cargo systems is unavailable, and provide



1 sufficient prepositioning of spares and other supplies need-
2 ed to accommodate any such hiatus.

3 (c) CERTIFICATION.—Not later than 60 days after
4 the date of enactment of this Act, and before making any
5 change in the ISS assembly sequence in effect on the date
6 of enactment of this Act, the Administrator shall certify
7 in writing to the Committee on Science of the House of
8 Representatives and the Committee on Commerce,
9 Science, and Transportation of the Senate NASA's plan
10 to meet the requirements of subsections (a) and (b).

11 **SEC. 502. HUMAN EXPLORATION PRIORITIES.**

12 (a) IN GENERAL.—The Administrator shall—

13 (1) construct an architecture and implementa-
14 tion plan for NASA's human exploration program
15 that is not critically dependent on the achievement
16 of milestones by fixed dates; and

17 (2) determine the relative priority of each of the
18 potential elements of NASA's implementation plan
19 for its human exploration program in case funding
20 shortfalls or cost growth necessitate the adjustment
21 of NASA's implementation plan.

22 (b) PRIORITIES.—Development of a Crew Explo-
23 ration Vehicle with a robust crew escape system, develop-
24 ment of a launch system for the Crew Exploration Vehicle,
25 and definition of an overall architecture and prioritized



1 implementation plan shall be the highest priorities of the
2 human exploration program over the period governed by
3 this Act.

4 **SEC. 503. GAO ASSESSMENT.**

5 Not later than 9 months after the date of enactment
6 of this Act, the Comptroller General shall transmit to the
7 Committee on Science of the House of Representatives
8 and the Committee on Commerce, Science, and Transpor-
9 tation of the Senate an assessment of the milestones and
10 estimated costs of the plans submitted under section
11 102(a)(7).

12 **TITLE VI—OTHER PROGRAM**
13 **AREAS**

14 **Subtitle A—Space and Flight**
15 **Support**

16 **SEC. 601. ORBITAL DEBRIS.**

17 The Administrator, in conjunction with the heads of
18 other Federal agencies, shall take steps to develop or ac-
19 quire technologies that will enable NASA to decrease the
20 risks associated with orbital debris.

21 **SEC. 602. SECONDARY PAYLOAD CAPABILITY.**

22 The Administrator is encouraged to provide the capa-
23 bilities to support secondary payloads on United States
24 launch vehicles, including freeflyers, for satellites or sci-
25 entific payloads.



1 **Subtitle B—Education**

2 **SEC. 611. INSTITUTIONS IN NASA’S MINORITY INSTITU-**
3 **TIONS PROGRAM.**

4 The matter appearing under the heading “**NA-**
5 **TIONAL AERONAUTICS AND SPACE ADMINISTRA-**
6 **TION**—SMALL AND DISADVANTAGED BUSINESS” in title
7 III of the Departments of Veterans Affairs and Housing
8 and Urban Development, and Independent Agencies Ap-
9 propriations Act, 1990 (42 U.S.C. 2473b; 103 Stat. 863)
10 is amended by striking “Historically Black Colleges and
11 Universities and” and inserting “Historically Black Col-
12 leges and Universities that are part B institutions (as de-
13 fined in section 322(2) of the Higher Education Act of
14 1965 (20 U.S.C. 1061(2))), Hispanic-serving institutions
15 (as defined in section 502(a)(5) of that Act (20 U.S.C.
16 1101a(a)(5))), Tribal Colleges or Universities (as defined
17 in section 316(b)(3) of that Act (20 U.S.C. 1059c(b)(3))),
18 Alaskan Native-serving institutions (as defined in section
19 317(b)(2) of that Act (20 U.S.C. 1059d(b)(2))), Native
20 Hawaiian-serving institutions (as defined in section
21 317(b)(4) of that Act (20 U.S.C. 1059d(b)(4))), and”.

22 **SEC. 612. PROGRAM TO EXPAND DISTANCE LEARNING IN**
23 **RURAL UNDERSERVED AREAS.**

24 (a) **IN GENERAL.**—The Administrator shall develop
25 or expand programs to extend science and space edu-



1 cational outreach to rural communities and schools
2 through video conferencing, interpretive exhibits, teacher
3 education, classroom presentations, and student field
4 trips.

5 (b) PRIORITIES.—In carrying out subsection (a), the
6 Administrator shall give priority to existing programs—

7 (1) that utilize community-based partnerships
8 in the field;

9 (2) that build and maintain video conference
10 and exhibit capacity;

11 (3) that travel directly to rural communities
12 and serve low-income populations; and

13 (4) with a special emphasis on increasing the
14 number of women and minorities in the science and
15 engineering professions.

16 **SEC. 613. CHARLES “PETE” CONRAD ASTRONOMY AWARDS.**

17 (a) SHORT TITLE.—This section may be cited as the
18 “Charles ‘Pete’ Conrad Astronomy Awards Act”.

19 (b) DEFINITIONS.—For the purposes of this
20 section—

21 (1) the term “amateur astronomer” means an
22 individual whose employer does not provide any
23 funding, payment, or compensation to the individual
24 for the observation of asteroids and other celestial



1 bodies, and does not include any individual employed
2 as a professional astronomer;

3 (2) the term “Minor Planet Center” means the
4 Minor Planet Center of the Smithsonian Astro-
5 physical Observatory;

6 (3) the term “near-Earth asteroid” means an
7 asteroid with a perihelion distance of less than 1.3
8 Astronomical Units from the Sun; and

9 (4) the term “Program” means the Charles
10 “Pete” Conrad Astronomy Awards Program estab-
11 lished under subsection (c).

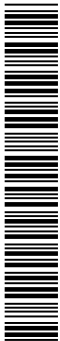
12 (c) PETE CONRAD ASTRONOMY AWARD PROGRAM.—

13 (1) IN GENERAL.—The Administrator shall es-
14 tablish the Charles “Pete” Conrad Astronomy
15 Awards Program.

16 (2) AWARDS.—The Administrator shall make
17 awards under the Program based on the rec-
18 ommendations of the Minor Planet Center.

19 (3) AWARD CATEGORIES.—The Administrator
20 shall make one annual award, unless there are no el-
21 igible discoveries or contributions, for each of the
22 following categories:

23 (A) The amateur astronomer or group of
24 amateur astronomers who in the preceding cal-
25 endar year discovered the intrinsically brightest



1 near-Earth asteroid among the near-Earth as-
2 teroids that were discovered during that year by
3 amateur astronomers or groups of amateur as-
4 tronomers.

5 (B) The amateur astronomer or group of
6 amateur astronomers who made the greatest
7 contribution to the Minor Planet Center's mis-
8 sion of cataloguing near-Earth asteroids during
9 the preceding year.

10 (4) AWARD AMOUNT.—An award under the
11 Program shall be in the amount of \$3,000.

12 (5) GUIDELINES.—(A) No individual who is not
13 a citizen or permanent resident of the United States
14 at the time of his discovery or contribution may re-
15 ceive an award under this section.

16 (B) The decisions of the Administrator in mak-
17 ing awards under this section are final.

18 **SEC. 614. REVIEW OF EDUCATION PROGRAMS.**

19 (a) IN GENERAL.—The Administrator shall enter
20 into an arrangement with the National Research Council
21 of the National Academy of Sciences to conduct a review
22 and evaluation of NASA's science, technology, engineer-
23 ing, and mathematics education program. The review and
24 evaluation shall be documented in a report to the Adminis-
25 trator and shall include such recommendations as the Na-



1 tional Research Council determines will improve the effec-
2 tiveness of the program.

3 (b) REVIEW.—The review and evaluation under sub-
4 section (a) shall include—

5 (1) an evaluation of the effectiveness of the
6 overall program in meeting its defined goals and ob-
7 jectives;

8 (2) an assessment of the quality and edu-
9 cational effectiveness of the major components of the
10 program, including an evaluation of the adequacy of
11 assessment metrics and data collection requirements
12 available for determining the effectiveness of indi-
13 vidual projects;

14 (3) an evaluation of the funding priorities in
15 the program, including a review of the funding level
16 and funding trend for each major component of the
17 program and an assessment of whether the resources
18 made available are consistent with meeting identified
19 goals and priorities; and

20 (4) a determination of the extent and the effec-
21 tiveness of coordination and collaboration between
22 NASA and other Federal agencies that sponsor
23 science, technology, engineering, and mathematics
24 education activities.



1 (c) REPORT TO CONGRESS.—Not later than 18
2 months after the date of enactment of this Act, the Ad-
3 ministrator shall transmit to the Committee on Science
4 of the House of Representatives and the Committee on
5 Commerce, Science, and Transportation of the Senate the
6 report required under subsection (a).

7 **SEC. 615. EQUAL ACCESS TO NASA'S EDUCATION PRO-**
8 **GRAMS.**

9 The Administrator shall strive to ensure equal access
10 for minority and economically disadvantaged students to
11 NASA's Education programs. Not later than 1 year after
12 the date of enactment of this Act, and every 2 years there-
13 after, the Administrator shall submit a report to the Com-
14 mittee on Science of the House of Representatives and the
15 Committee on Commerce, Science, and Transportation of
16 the Senate describing the efforts by the Administrator to
17 ensure equal access for minority and economically dis-
18 advantaged students under this section, and the results
19 of such efforts.

20 **TITLE VII—MISCELLANEOUS**
21 **AMENDMENTS**

22 **SEC. 701. RETROCESSION OF JURISDICTION.**

23 The National Aeronautics and Space Act of 1958 (42
24 U.S.C. 2451 et seq.) is amended by adding at the end
25 of title III the following new section:



1 “RETROCESSION OF JURISDICTION

2 “SEC. 316. (a) Notwithstanding any other provision
3 of law, the Administrator may relinquish to a State all
4 or part of the legislative jurisdiction of the United States
5 over lands or interests under the control of the Adminis-
6 trator in that State.

7 “(b) For purposes of this section, the term ‘State’
8 means any of the several States, the District of Columbia,
9 the Commonwealth of Puerto Rico, the United States Vir-
10 gin Islands, Guam, American Samoa, the Northern Mar-
11 iana Islands, and any other commonwealth, territory, or
12 possession of the United States.”.

13 **SEC. 702. EXTENSION OF INDEMNIFICATION.**

14 Section 309 of the National Aeronautics and Space
15 Act of 1958 (42 U.S.C. 458c) is amended in subsection
16 (f)(1) by striking “December 31, 2002” through “Sep-
17 tember 30, 2005” and inserting, “December 31, 2010, ex-
18 cept that the Administrator may extend the termination
19 date to a date not later than September 30, 2015, if the
20 Administrator has entered into an arrangement with the
21 National Academy of Public Administration to determine
22 the impact on private parties and the Federal Government
23 of eliminating this section”.



1 **SEC. 703. NASA SCHOLARSHIPS.**

2 (a) AMENDMENTS.—Section 9809 of title 5, United
3 States Code, is amended—

4 (1) in subsection (a)(2) by striking “Act.” and
5 inserting “Act (42 U.S.C. 1885a or 1885b).”;

6 (2) in subsection (c) by striking “require.” and
7 inserting “require to carry out this section.”;

8 (3) in subsection (f)(1) by striking the last sen-
9 tence; and

10 (4) in subsection (g)(2) by striking “Treasurer
11 of the” and all that follows through “by 3” and in-
12 serting “Treasurer of the United States”.

13 (b) REPEAL.—The Vision 100—Century of Aviation
14 Reauthorization Act is amended by striking section 703
15 (42 U.S.C. 2473e).

16 **SEC. 704. INDEPENDENT COST ANALYSIS.**

17 Section 301 of the National Aeronautics and Space
18 Administration Authorization Act of 2000 (42 U.S.C.
19 2459g) is amended—

20 (1) by striking “Phase B” in subsection (a) and
21 inserting “implementation”;

22 (2) by striking “\$150,000,000” in subsection
23 (a) and inserting “\$250,000,000”;

24 (3) by striking “Chief Financial Officer” each
25 place it appears in subsection (a) and inserting “Ad-
26 ministrator”;



1 (4) by inserting “and consider” in subsection
2 (a) after “shall conduct”; and

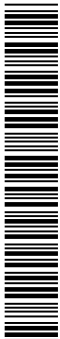
3 (5) by striking subsection (b) and inserting the
4 following:

5 “(b) IMPLEMENTATION DEFINED.—In this section,
6 the term ‘implementation’ means all activity in the life
7 cycle of a project after preliminary design, independent as-
8 sessment of the preliminary design, and approval to pro-
9 ceed into implementation, including critical design, devel-
10 opment, certification, launch, operations, disposal of as-
11 sets, and, for technology programs, development, testing,
12 analysis and communication of the results.”.

13 **SEC. 705. LIMITATIONS ON OFF-SHORE PERFORMANCE OF**
14 **CONTRACTS FOR THE PROCUREMENT OF**
15 **GOODS AND SERVICES.**

16 (a) CONVERSIONS TO CONTRACTOR PERFORMANCE
17 OF ADMINISTRATION ACTIVITIES.—Except as provided in
18 subsection (c), an activity or function of the Administra-
19 tion that is converted to contractor performance under Of-
20 fice of Management and Budget Circular A-76 may not
21 be performed by the contractor or any subcontractor at
22 a location outside the United States.

23 (b) CONTRACTS FOR THE PROCUREMENT OF SERV-
24 ICES.—(1) Except as provided in subsection (c), a contract
25 for the procurement of goods or services that is entered



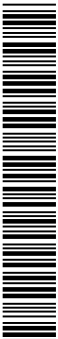
1 into by the Administrator may not be performed outside
2 the United States unless it is to meet a requirement of
3 the Administration for goods or services specifically at a
4 location outside the United States.

5 (2) The President may waive the prohibition in para-
6 graph (1) in the case of any contract for which the Presi-
7 dent determines in writing that it is necessary in the na-
8 tional security interests of the United States for goods or
9 services under the contract to be performed outside the
10 United States.

11 (3) The Administrator may waive the prohibition in
12 paragraph (1) in the case of any contract for which the
13 Administrator determines in writing that essential goods
14 or services under the contract are only available from a
15 source outside the United States.

16 (c) EXCEPTION.—Subsections (a) and (b)(1) shall
17 not apply to the extent that the activity or function under
18 the contract was previously performed by Federal Govern-
19 ment employees outside the United States.

20 (d) CONSISTENCY WITH INTERNATIONAL AGREE-
21 MENTS.—The provisions of this section shall not apply to
22 the extent that they are inconsistent with obligations of
23 the United States under international agreements.



1 **TITLE VIII—INDEPENDENT**
2 **COMMISSIONS**

3 **SEC. 801. DEFINITIONS.**

4 For purposes of this title—

5 (1) the term “Commission” means a Commis-
6 sion established under this title; and

7 (2) the term “incident” means either an acci-
8 dent or a deliberate act.

9 **Subtitle A—International Space**
10 **Station Independent Safety**
11 **Commission**

12 **SEC. 811. ESTABLISHMENT OF COMMISSION.**

13 (a) ESTABLISHMENT.—The President shall establish
14 an independent, nonpartisan Commission within the exec-
15 utive branch to discover and assess any vulnerabilities of
16 the International Space Station that could lead to its de-
17 struction, compromise the health of its crew, or necessitate
18 its premature abandonment.

19 (b) DEADLINE FOR ESTABLISHMENT.—The Presi-
20 dent shall issue an executive order establishing a Commis-
21 sion within 30 days after the date of enactment of this
22 Act.

23 **SEC. 812. TASKS OF THE COMMISSION.**

24 The Commission established under section 811 shall,
25 to the extent possible, undertake the following tasks:



1 (1) Catalog threats to and vulnerabilities of the
2 ISS, including design flaws, natural phenomena,
3 computer software or hardware flaws, sabotage or
4 terrorist attack, number of crewmembers, and inabil-
5 ity to adequately deliver replacement parts and sup-
6 plies, and management or procedural deficiencies.

7 (2) Make recommendations for corrective ac-
8 tions.

9 (3) Provide any additional findings or rec-
10 ommendations related to ISS safety.

11 (4) Prepare a report to Congress, the Presi-
12 dent, and the public.

13 **SEC. 813. SUNSET.**

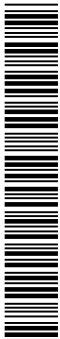
14 The Commission established under this subtitle shall
15 expire not later than one year after the date on which the
16 full Commission membership is appointed.

17 **Subtitle B—Human Space Flight**
18 **Independent Investigation Com-**
19 **mission**

20 **SEC. 821. ESTABLISHMENT OF COMMISSION.**

21 (a) ESTABLISHMENT.—The President shall establish
22 an independent, nonpartisan Commission within the exec-
23 utive branch to investigate any incident that results in the
24 loss of—

25 (1) a Space Shuttle;



1 (2) the International Space Station or its oper-
2 ational viability;

3 (3) any other United States space vehicle car-
4 rying humans that is being used pursuant to a con-
5 tract with the Federal Government; or

6 (4) a crew member or passenger of any space
7 vehicle described in this subsection.

8 (b) DEADLINE FOR ESTABLISHMENT.—The Presi-
9 dent shall issue an executive order establishing a Commis-
10 sion within 7 days after an incident specified in subsection
11 (a).

12 **SEC. 822. TASKS OF THE COMMISSION.**

13 A Commission established pursuant to this subtitle
14 shall, to the extent possible, undertake the following tasks:

15 (1) Investigate the incident.

16 (2) Determine the cause of the incident.

17 (3) Identify all contributing factors to the cause
18 of the incident.

19 (4) Make recommendations for corrective ac-
20 tions.

21 (5) Provide any additional findings or rec-
22 ommendations deemed by the Commission to be im-
23 portant, whether or not they are related to the spe-
24 cific incident under investigation.



1 (6) Prepare a report to Congress, the Presi-
2 dent, and the public.

3 **Subtitle C—Organization and**
4 **Operation of Commissions**

5 **SEC. 831. COMPOSITION OF COMMISSIONS.**

6 (a) NUMBER OF COMMISSIONERS.—A Commission
7 established pursuant to this title shall consist of 15 mem-
8 bers.

9 (b) SELECTION.—The members of a Commission
10 shall be chosen in the following manner:

11 (1) The President shall appoint the members,
12 and shall designate the Chairman and Vice Chair-
13 man of the Commission from among its members.

14 (2) Four of the 15 members appointed by the
15 President shall be selected by the President in the
16 following manner:

17 (A) The majority leader of the Senate, the
18 minority leader of the Senate, the Speaker of
19 the House of Representatives, and the minority
20 leader of the House of Representatives shall
21 each provide to the President a list of can-
22 didates for membership on the Commission.

23 (B) The President shall select one of the
24 candidates from each of the 4 lists for member-
25 ship on the Commission.



1 (3) In the case of a Commission established
2 under subtitle A, the President shall select one can-
3 didate from a list of candidates for membership on
4 the Commission provided by the President of the col-
5 lective-bargaining organization including the largest
6 member of NASA engineers.

7 (4) No officer or employee of the Federal Gov-
8 ernment shall serve as a member of the Commission.

9 (5) No member of the Commission shall have,
10 or have pending, a contractual relationship with
11 NASA.

12 (6) The President shall not appoint any indi-
13 vidual as a member of a Commission under this sec-
14 tion who has a current or former relationship with
15 the Administrator that the President determines
16 would constitute a conflict of interest.

17 (7) To the extent practicable, the President
18 shall ensure that the members of the Commission in-
19 clude some individuals with experience relative to
20 human carrying spacecraft, as well as some individ-
21 uals with investigative experience and some individ-
22 uals with legal experience.

23 (8) To the extent practicable, the President
24 shall seek diversity in the membership of the Com-
25 mission.



1 (9) The President may waive the prohibitions in
2 paragraphs (5) and (6) with respect to the selection
3 of not more than 2 members of a Commission estab-
4 lished under subtitle A.

5 (c) DEADLINE FOR APPOINTMENT.—All members of
6 a Commission established under subtitle A shall be ap-
7 pointed no later than 60 days after issuance of the execu-
8 tive order establishing the Commission. All members of a
9 Commission established under subtitle B shall be ap-
10 pointed no later than 30 days after the incident.

11 (d) INITIAL MEETING.—A Commission shall meet
12 and begin operations as soon as practicable.

13 (e) QUORUM; VACANCIES.—After its initial meeting,
14 a Commission shall meet upon the call of the Chairman
15 or a majority of its members. Eight members of a Com-
16 mission shall constitute a quorum. Any vacancy in a Com-
17 mission shall not affect its powers, but shall be filled in
18 the same manner in which the original appointment was
19 made.

20 **SEC. 832. POWERS OF COMMISSION.**

21 (a) HEARINGS AND EVIDENCE.—A Commission or,
22 on the authority of the Commission, any subcommittee or
23 member thereof, may, for the purpose of carrying out this
24 title—



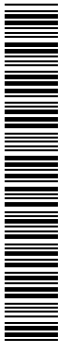
1 (1) hold such hearings and sit and act at such
2 times and places, take such testimony, receive such
3 evidence, administer such oaths; and

4 (2) require, by subpoena or otherwise, the at-
5 tendance and testimony of such witnesses and the
6 production of such books, records, correspondence,
7 memoranda, papers, and documents,
8 as the Commission or such designated subcommittee or
9 designated member may determine advisable.

10 (b) CONTRACTING.—A Commission may, to such ex-
11 tent and in such amounts as are provided in appropriation
12 Acts, enter into contracts to enable the Commission to dis-
13 charge its duties under this title.

14 (c) INFORMATION FROM FEDERAL AGENCIES.—

15 (1) IN GENERAL.—A Commission may secure
16 directly from any executive department, bureau,
17 agency, board, commission, office, independent es-
18 tablishment, or instrumentality of the Government,
19 information, suggestions, estimates, and statistics
20 for the purposes of this title. Each department, bu-
21 reau, agency, board, commission, office, independent
22 establishment, or instrumentality shall, to the extent
23 authorized by law, furnish such information, sugges-
24 tions, estimates, and statistics directly to the Com-
25 mission, upon request made by the Chairman, the



1 chairman of any subcommittee created by a majority
2 of the Commission, or any member designated by a
3 majority of the Commission.

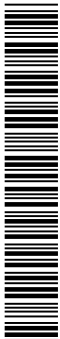
4 (2) RECEIPT, HANDLING, STORAGE, AND DIS-
5 SEMINATION.—Information shall only be received,
6 handled, stored, and disseminated by members of
7 the Commission and its staff consistent with all ap-
8 plicable statutes, regulations, and Executive orders.

9 (d) ASSISTANCE FROM FEDERAL AGENCIES.—

10 (1) GENERAL SERVICES ADMINISTRATION.—
11 The Administrator of General Services shall provide
12 to a Commission on a reimbursable basis adminis-
13 trative support and other services for the perform-
14 ance of the Commission's tasks.

15 (2) OTHER DEPARTMENTS AND AGENCIES.—In
16 addition to the assistance prescribed in paragraph
17 (1), departments and agencies of the United States
18 may provide to the Commission such services, funds,
19 facilities, staff, and other support services as they
20 may determine advisable and as may be authorized
21 by law.

22 (3) NASA ENGINEERING AND SAFETY CEN-
23 TER.—The NASA Engineering and Safety Center
24 shall provide data and technical support as re-
25 quested by a Commission.



1 **SEC. 833. PUBLIC MEETINGS, INFORMATION, AND HEAR-**
2 **INGS.**

3 (a) PUBLIC MEETINGS AND RELEASE OF PUBLIC
4 VERSIONS OF REPORTS.—A Commission shall—

5 (1) hold public hearings and meetings to the ex-
6 tent appropriate; and

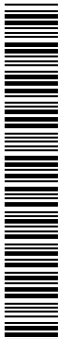
7 (2) release public versions of the reports re-
8 quired under this Act.

9 (b) PUBLIC HEARINGS.—Any public hearings of a
10 Commission shall be conducted in a manner consistent
11 with the protection of information provided to or developed
12 for or by the Commission as required by any applicable
13 statute, regulation, or Executive order.

14 **SEC. 834. STAFF OF COMMISSION.**

15 (a) APPOINTMENT AND COMPENSATION.—The
16 Chairman, in consultation with Vice Chairman, in accord-
17 ance with rules agreed upon by a Commission, may ap-
18 point and fix the compensation of a staff director and such
19 other personnel as may be necessary to enable the Com-
20 mission to carry out its functions.

21 (b) DETAILEES.—Any Federal Government em-
22 ployee, except for an employee of NASA, may be detailed
23 to a Commission without reimbursement from the Com-
24 mission, and such detailee shall retain the rights, status,
25 and privileges of his or her regular employment without
26 interruption.

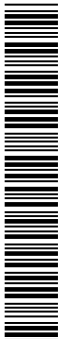


1 (c) CONSULTANT SERVICES.—A Commission may
2 procure the services of experts and consultants in accord-
3 ance with section 3109 of title 5, United States Code, but
4 at rates not to exceed the daily rate paid a person occu-
5 pying a position at level IV of the Executive Schedule
6 under section 5315 of title 5, United States Code. Any
7 consultant or expert whose services are procured under
8 this subsection shall disclose any contract or association
9 it has with NASA or any NASA contractor.

10 **SEC. 835. COMPENSATION AND TRAVEL EXPENSES.**

11 (a) COMPENSATION.—Each member of a Commission
12 may be compensated at not to exceed the daily equivalent
13 of the annual rate of basic pay in effect for a position
14 at level IV of the Executive Schedule under section 5315
15 of title 5, United States Code, for each day during which
16 that member is engaged in the actual performance of the
17 duties of the Commission.

18 (b) TRAVEL EXPENSES.—While away from their
19 homes or regular places of business in the performance
20 of services for the Commission, members of a Commission
21 shall be allowed travel expenses, including per diem in lieu
22 of subsistence, in the same manner as persons employed
23 intermittently in the Government service are allowed ex-
24 penses under section 5703(b) of title 5, United States
25 Code.



1 **SEC. 836. SECURITY CLEARANCES FOR COMMISSION MEM-**
2 **BERS AND STAFF.**

3 The appropriate Federal agencies or departments
4 shall cooperate with a Commission in expeditiously pro-
5 viding to the Commission members and staff appropriate
6 security clearances to the extent possible pursuant to ex-
7 isting procedures and requirements. No person shall be
8 provided with access to classified information under this
9 title without the appropriate security clearances.

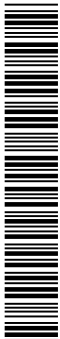
10 **SEC. 837. REPORTING REQUIREMENTS AND TERMINATION.**

11 (a) INTERIM REPORTS.—A Commission may submit
12 to the President and Congress interim reports containing
13 such findings, conclusions, and recommendations for cor-
14 rective actions as have been agreed to by a majority of
15 Commission members.

16 (b) FINAL REPORT.—A Commission shall submit to
17 the President and Congress, and make concurrently avail-
18 able to the public, a final report containing such findings,
19 conclusions, and recommendations for corrective actions
20 as have been agreed to by a majority of Commission mem-
21 bers. Such report shall include any minority views or opin-
22 ions not reflected in the majority report.

23 (c) TERMINATION.—

24 (1) IN GENERAL.—A Commission, and all the
25 authorities of this title with respect to that Commis-



1 sion, shall terminate 60 days after the date on which
2 the final report is submitted under subsection (b).

3 (2) ADMINISTRATIVE ACTIVITIES BEFORE TER-
4 MINATION.—A Commission may use the 60-day pe-
5 riod referred to in paragraph (1) for the purpose of
6 concluding its activities, including providing testi-
7 mony to committees of Congress concerning its re-
8 ports and disseminating the final report.

